GAS JOURNAL, MAY 3, 1939

VOL. 226. 91st YEAR. No. 3963.

Editorial Notes

The B.C.G.A. Conference

As recorded in our Special B.C.G.A. Number, the 27th Annual Conference of the Association held at Brighton last week under the Presidency of Mr. A. M. Paddon was an outstanding success. It was outstanding not only from the point of view of the very large attendance, but also on account of the high quality of the Papers presented and of the discussions to which they gave rise, and of the spirit of "aliveness" which throughout animated the proceedings. As for the organization of the entire meeting—well, the B.C.G.A. knows how to organize. And the Brighton, Hove, and Worthing Gas Company, of which Mr. Paddon is, of course, Chairman, added to its reputation for alertness and hospitality.

In his Address, Mr. Paddon, who has a long and remarkable experience of the Gas Industry, touched upon the legal, technical, and commercial aspects of its operation, and, pointing out that smokeless homes are no more costly than smoke-producing ones—that they are now within the means of every family—urged that local authorities should, by corporate action, further the cause of smoke abatement. The appalling cost of smoke was also referred to by Sir Harold Hartley and Lord Horder in their Papers. Sir Harold Hartley sketched the contribution which the Gas Industry is making to the conservation of the nation's resources in each of the three main fields of its activities, gas, coke, and by-products. It is to be hoped that his Paper will be brought to the attention of those responsible for national and local government. "The basis of the Industry," he said, "is the scientific use of a single raw material, coal, in order to derive the maximum advantages from it. A comparison with the burning of raw coal shows not only a saving of material, but a service which has added enormously to the standard of comfort, cleanliness, and hygiene in the home, a reduction of the smoke problem in great cities, and a recovery of large quantities of chemicals essential to the industries of this country. For all these reasons the carbonizing industry must form a permanent part of our industrial fabric." The part which the Gas Industry plays in the national economy is not nearly well enough appreciated, nor is the part which it could play sufficiently realized.

The fact is that, in spite of the progress made by the Industry, more than 50% of the domestic fuel requirements of this country are still met by the burning of raw coal. This is the field which lies ahead of the Industry; and it has been shown beyond doubt that gas and coke can between them supply the fuel needs of every type of establishment, at the same time rendering a great service to the community by helping to produce a smokeless atmosphere. We are glad that such emphasis was laid at the conference on the vital importance of the coke market. Sir Harold Hartley spoke of the expanding domestic market due to the improvement in the quality of coke and the efficiency of coke burning appliances. Lord Horder referred to the gas ignited coke fire as an "intelligent affair." There is no question at all that the net return on coke is having an increasing importance in influencing the price of gas. The prosperity of the Industry is depending more and more on the coke market. As Mr. Foot remarked at the conference, there are three essential factors which will guarantee a good return from coke. The first is the production of a suitable coke—and this is not being done throughout the Industry to-day. The second is further technical development in connexion with sales and appliances. The third is the commercial organization for maintaining a fair and proper price. The third factor necessitates the co-operation of the coke oven industry.

On the subject of the increasing use of gas in industry, Sir Harold Hartley referred to the growing amount of coke oven gas taken by gas undertakings for re-sale. In 1936 the quantity purchased was 2,322 million cu.ft. In 1937 the quantity was 27,486 millions. If these figures are analyzed it will be found what a major part has been played by the Sheffield and District Gas Company in this development. Of the total quoted, the amount purchased by the Company in 1937 was no less than 10,058 million cu.ft.; and during the discussion Mr. Halkett pointed out that the demand by industrialists upon the South Yorkshire Gas Grid was greater than the supply available.

Development of the Domestic Load

ONE of the Papers at the conference was by Mr. R. J. Rogers, in which he reviewed the important problem of the retention and development of the domestic load and focused attention on the salient points brought out at the recent Joint Gas Conference held in Birmingham. It will be recalled that at that conference one of the subjects discussed

was the price of appliances and the great disparity which exists in the charges to the public made for goods supplied for cash or on hire purchase terms by various undertakings. At the time we expressed the view that the policy of taking large profits from subsidiary activities is wrong, though as a general policy it is unwise to burden the price of gas with the cost of appliances and their fixing. And it becomes of more and more importance that the great variations in policy and in prices between adjacent undertakings should be eliminated. There should be some regional co-operation and an agreed policy generally adopted. It is obviously in the best interests of the Industry to ensure that the terms offered to gas consumers in contiguous areas should be as nearly as possible the same.

Mr. Rogers devoted a considerable portion of his Paper to the rôle of the manufacturer in supplying appliances at a cost as low as possible compatible with satisfactory performance. In any consideration of cost of appliances it should be remembered that large sums of money are spent annually by manufacturers on research in their quest for improvement in the efficiency and design of domestic appliances. Again, the manufacturers render service to gas undertakings by the provision of publicity matter, displays, exhibitions, demonstrations, advertisements, and so on—and all this costs money. If this service was discontinued, gas undertakings would themselves be faced with further expenditure under these heads—that is, if they desired to maintain the present efficacy of propaganda work.

Naturally the Gas Industry desires low-priced appliances, but the gas appliance which is purchased at the lowest first cost is not necessarily the most economical apparatus to fix on a consumer's premises. The questions of sustained efficiency and satisfactory performance in use, and of the cost of maintenance must be considered. Extended hire-purchase terms running into periods as long as seven years are now common practice, and they render it necessary to supply appliances of sound construction. The durability factor must be given its place; and here again durability must be paid for. There must be a limit to the real economy which may be obtained by cheapening certain parts of an appliance. Such cheapening may lead to ultimate increased cost in maintenance. But, as we have said before, much could be done in the right direction if undertakings refrained from making individual requests for slight modifications in a given design of appliance—modifications which all too frequently are the expression of personal whims. Then there is no doubt that, in regard to the whole question of maintenance costs, each undertaking should have precise information as to the cost of maintaining the various types of appliance they have in use.

Another opinion expressed by Mr. Rogers—and it is a view we have put forward before—was that national statistics regarding the retention and development of the domestic load should be available in our Industry; and he suggested that a co-ordinated survey should be made. At the present time it is estimated that nine million gas cookers are in use in Great Britain. However, electrical statistics show that one million electric cookers are also in use. Obviously the domestic gas load and its retention demands our most serious thought. A Paper on the subject of market survey in relation to sales development was read at the conference by Mr. J. P. G. Dowman, and it led to an excellent discussion. Now a market survey need not be unduly expensive. It can start with a census enquiry, and it has been shown that the sales resulting from such a scheme more than cover the cost of the census. A knowledge of what appliances are installed, and what are not, is essential to good publicity work. For example, what useful purpose is served by circularizing information concerning, say, water heaters to consumers who are already using gas for water heating? Wastage of expenditure on publicity can be avoided by carrying out a census scheme and making the fullest use of the information accruing from it.

It must be realized, however, that the kind of information gained from market surveys is static. In other words, it presents a stationary picture of certain facts as ascertained at the time, or during the period, the survey was made. But, as Mr. Dowman emphasized in his most interesting Paper, any market is a continuously changing scene; and what is true of to-day is not necessarily true of to-morrow. A market survey begins to lose its accuracy value from the time it is prepared. It offers what may often have to be considered as perishable information. The ideal, of course, would be to have a continuous motion picture of the market, illustrating the changes which are taking place all the time—a record of fact that is continuously accurate. It is unnecessary to emphasize what a great advantage it is for any undertaking to be able to see at a glance at any time how its current business prospects stand in relation to the domestic loads. This information, if continuously available, would greatly assist undertakings to plan their sales development drives for any particular class of business on which there appears a need to concentrate, and in the process eliminate wastage of effort.

A Test Case

A DECISION of great importance to rating authorities and public utilities throughout the country was given in the Divisional Court recently in the case of the Isle of Thanet Gas Company. This was a test case supported by the Conjoint Conference for the purpose of testing the validity of the proposals made by the Kent County Valuation Committee to amend the assessment of the Gas Company as contained in the current valuation list. It was agreed that the validity of the proposals made upon other undertakings in the County, which were in similar terms, should depend upon the judgment of the Courts in the Isle of Thanet Gas Company case.

These proposals contained no indication of the nature of the alteration which the rating authority desired to make in the current assessments of the public utility undertakings of the County, but stated merely that the County Valuation Committee was aggrieved by the unfairness of the valuation list, and that it was proposed to alter the valuation contained in that list to such an amount as might be deemed fair having regard to the 1937 accounts. With regard to the Isle of Thanet Gas Company at least the 1937 accounts were not in the hands of the County Valuation Committee at the time that the proposal was made. Negotiations between the County Valuation Committee and the public utilities of the County as represented by the Conjoint Conference were unsuccessful, and it was therefore decided to test the matter by an appeal to the High Court.

The decision of the Divisional Court, which was presided over by the Lord Chief Justice, was in favour of the Gas Company, which was awarded costs against the County Valuation Committee. The Lord Chief Justice held that the proposal was too vague, and did not give the occupier any indication of the nature of the amendment proposed by the County Valuation Committee. Although the proposal followed the words of the Rating and Valuation Act, 1925, in alleging unfairness, it failed to comply with the further requirement of that Act that the ground on which the proposed amendment was supported should be specified. Mr.

Justice Singleton, while concurring with the views expressed by the Lord Chief Justice, went even further, and stated that he could not understand how the County Valuation Committee could be "aggrieved" if they had not seen the accounts upon which they desired to base their proposal. Of great significance also was a remark interjected by Mr. Justice Humphreys, which indicated that there should at least be a *prima facie* case before a proposal for the revision of the assessment is made.

The case is directly applicable only to the proposals made in Kent. These proposals will now be quashed. It has, however, a wider application. Since the extension of the present quinquennial period to 1941 many rating authorities have made proposals with respect to all public utility undertakings in their area. It is, of course, admitted that proposals may be made at any time provided circumstances have arisen since the last assessment to justify a revaluation. Such circumstances should, however, be substantial and material if compliance is to be made with the recommendations of the Central Valuation Committee that normally the assessment made at the beginning of the quinquennial period should be maintained throughout that period. The making of proposals indiscriminately upon a particular class of hereditament such as those of public utilities must, it is thought, be contrary to the spirit of the Rating and Valuation Act, since it is difficult to believe that extraordinary circumstances justifying such a course can exist in the case of every undertaking. Too often the proposals so made are vague, and, indeed, necessarily so, because the rating authority has not the information necessary to enable it to particularize.

The whole object of the proposal in such a case is to obtain that information in order to enable the rating authority to decide whether a *prima facie* case for reassessment can be made out. This is an abuse of the Act, which gives ample power to a rating authority to obtain information otherwise than by making proposals. We on our part find it difficult to understand the fervid desire of many rating authorities to carry out reassessments at the present time, unless they intend that no further revaluation will be undertaken at the beginning of the next quinquennium in 1941.

At the present time Public Utilities are being called upon by the Government to undertake heavy work in connexion with civil defence. This necessary work must be carried out without detriment to the normal services rendered by public utility undertakers to the community. This can be no time for rating authorities to impose upon undertakers the cost and labour of a rating reassessment in apparent contravention of the wishes of the Government to postpone revaluations throughout the country until 1941.

New Housing

THE total number of houses built in England and Wales since the Armistice now amounts to the impressive figure of 4,000,000—a figure all the more striking when one bears in mind that the total number of houses in England and Wales in 1918 was 8,000,000. Large areas of great cities have been changed in appearance. Every day more than a thousand people are being moved from the slums. All this building activity has, of course, had its effect on the Gas Industry. It has necessitated very much higher distribution costs. The number of consumers per mile of main is now lower than formerly, and in many cases those who have moved into the new houses were users of gas for lighting as well as fuel purposes, while now they have the dual service of gas and electricity and employ electricity for lighting. Again, the modern equipment installed in the new dwellings is far more thermally efficient than that previously in use, and less gas is required for a given service. In addition, the standard of service given and demanded is far higher than it was: and it costs money to supply that standard.

The cost entailed in supplying gas to all these new houses has been great, but the equipment in these 4,000,000 homes represents a vast field for gas sales—provided gas is offered at truly promotional rates. The higher standard of living now enjoyed by the community has brought about a clearer conception of the needless waste caused by the burning of raw coal. It takes time for an idea to crystallize, but we think that it will not be long before the idea of clean skies does crystallize. The Gas Industry has demonstrated that smokeless heat need cost no more to the purchaser than smoky heat. And the Ministry of Health has adopted as its slogan "On to the fifth million." Another million houses to be built within the next few years. What an opportunity lies before the Gas Industry—again, provided gas is offered at truly promotional rates and the consumption per consumer figure is raised to an amount sufficient to cover the increased costs of distribution of gas to-day.

Forthcoming Engagements

May.

5.—North of England Association.—Annual Meeting at Newcastle.

6.—I.G.E.—Written Examinations in Gas Engineering (Supply).

6.—Manchester and District Juniors.—Visit to Higginshaw Gas-Works, Oldham. Paper by F. Cartledge on "Coal and Coke Handling Plant at Higginshaw."

6.—Midland Juniors.—Visit to Coventry Works of Geo. Wilson Gas Meters, Ltd., and to Foleshill Gas-Works.

8.—L.C.C.A.—Technical Committee, 2.30 p.m.

9.—Federation of Gas Employers.—Meeting of Central Committee, 11 a.m., at May Fair Hotel, W.1; Annual General Meeting, 3.30 p.m., at Gas Industry House.

9.—London and Southern Juniors.—Annual Business Meeting.

9.—N.G.C.—Central Executive Board, 12 noon, at May Fair Hotel, W.1; Annual General Meeting, 2.45 p.m., at Gas Industry House.

10.—S.B.G.I.—Council Meeting, 56, Victoria Street, S.W.1, 11.30 a.m.; Annual Meeting in the afternoon at the May Fair Hotel.

11.—Midland Juniors.—Annual General Meeting. Address by G. Dixon (Nottingham).

13.—Scottish Eastern Juniors.—Annual General Meeting at Edinburgh. Presidential Address of R. Cowie, Jnr. (Hawick).

13.—Yorkshire Juniors.—Meeting at Harrogate. Short Papers by D. C. Gunn, J. W. Stacey, and H. Ramsden.

16.—I.G.E.—Gas Education Executive Committee, 2.30 p.m.

18.—I.G.E.—Joint Committee on Complete Gasification under Pressure, 16, Old Queen Street, S.W.1.

19.—Southern Association.—Meeting at Devonport.

23.—Southern Association (Eastern District).—Meeting at Gas Industry House, 2.30 p.m. Discussion on "Immersion Heating as Applied to Soft Metal Melting."

25.—Wales and Monmouthshire Association.—Annual Meeting at Newport.

25-26.—Eastern Counties Association.—Spring Meeting at Grimsby.

June.

6.—I.G.E.—Council, Institution of Civil Engineers, 9.30 a.m.

6, 7, 8, and 9.—I.G.E.—Seventy-Sixth Annual General Meeting, Institution of Civil Engineers.

24.—London and Southern Juniors.—Summer Visit to Windsor.

Personal

Mr. RALPH HALKETT, General Manager of the Sheffield Gas Company, has been re-elected a Director of the Wharncliffe Silkstone Colliery Company, Barnsley.

* * *

Mr. ERNEST H. LEEDER has relinquished his position as Chairman of the Swansea Gas Light Company, which he has held for many years, but will retain a seat on the Board of Directors. This was announced with regret at the annual general meeting of the Superannuation and Co-Partnership Schemes of the Company, when many tributes were paid by members of the staff to the esteem and affection in which Mr. Leeder was universally held.

* * *

We learn that Mr. H. DAVIES, Engineer and Manager of the Chesterfield Gas Department, is to retire in October under the Corporation's Superannuation Scheme, and a Sub-Committee of the Town Council is considering the matter. Mr. Davies, who is sixty-one, went to Chesterfield from Brighouse as Gas Manager under the old Chesterfield Gas and Water Board in 1919. He started his career at Runcorn and went from there to Darwen. Then after some time at Colne he was appointed Assistant Gas Engineer and Manager at Blackburn, where he remained for eight years. He left there to become Engineer and Manager at Brighouse.

* * *

The Board of Stephenson Clarke and Associated Companies, Ltd., announce that Mr. JOHN PHILIP STEPHENSON CLARKE has been elected Vice-Chairman of the Company.

* * *

Mr. J. P. MEDD, of Newcastle-on-Tyne, has been appointed Industrial Gas Salesman to the Darlington Corporation.

Mr. J. GIBSON, Engineer and Manager of the Mansfield Gas Department, retired at the end of April. A Scotsman, he served his apprenticeship as an engineering draughtsman in Scotland, followed by four years with the Paisley Gas Department. He was later appointed Gas Engineer at Beverley. After ten years there he spent thirteen years at the Leigh Gas-Works. This he followed with his appointment to the Mansfield Corporation, a position he has now held for twenty-three years.

* * *

Mr. WILFRED MOORE GLEDHILL, Technical Assistant to the Worcester New Gas Light Company, youngest son of the late Mr. Thomas M. Gledhill, Gas and Water Engineer, Filey, and Mrs. Gledhill, was married in Christ Church, Falkirk, on April 22, to Miss NANCY RITCHIE, only daughter of Mr. H. G. Ritchie, Engineer and Manager, Falkirk Gas Department, and Mrs. Ritchie.

* * *

The wedding was solemnized on April 18 of Mr. S. J. PARTON and Miss ALEXANDRA M. B. MACKAY, youngest daughter of Mr. A. MacKay, Chief Engineer to the Stoke-on-Trent Gas Department, and Mrs MacKay.

* * *

Mr. DONALD CRANSTON, Showroom Manager of the Motherwell and Wishaw Gas Department, has been appointed Chief Salesman of the Edinburgh Gas Department. A clever amateur boxer and expert physical culturist, Mr. Cranston has devoted considerable time for many years to the training of members of local clubs and youth movements.

* * *

We learn that Mr. W. J. BAKER, Engineer-in-Chief and Manager of the Shanghai Gas Company, Ltd., is due in England on May 13 for a few months' stay on business.

Obituary

CHARLES DRU DRURY

It is with deep regret that we announce the death on April 25 at the age of seventy-five of Mr. Charles Dru Drury, Director and former Chief Engineer of the Sunderland Gas Company and President of the North of England Gas Managers' Association. Mr. Drury's association with the Industry extended over nearly sixty years, the last forty-seven of which had been spent in the service of the Sunderland Company.

Educated at private schools and Cheltenham College, Mr. Drury studied for several years under Professor Henry Adams at the City of London College, obtaining numerous certificates from the City and Guilds of London Institute. In 1880 he became a pupil of Mr. P. J. Wates, who at that time was Engineer at the Vauxhall Works of the South Metropolitan Gas Company; five years later he was appointed Assistant to the late Dr. Carpenter, who succeeded Mr. Wates as Engineer at those Works. For seven years he served the South Metropolitan Company at Vauxhall, relinquishing his position in February, 1892, upon his appointment to take charge of the Hendon Works of the Sunderland Gas Company.

The death in November, 1909, of Mr. J. H. Cox, who for upwards of sixty years had been Secretary and Manager of the Sunderland Company, led to a rearrangement of that Company's staff whereby Mr. Drury became Engineer in charge of the two Gas-Works at Hendon and Ayres Quay. He was elected to a seat on the Board of the Company in 1929—a position which he retained, with lasting benefit to the Undertaking, up to the time of his death. He retired from the position of Engineer in June, 1937.

In 1910 Mr. Drury became a Member of the Institution of Civil Engineers. For some years he acted in the capacity of Consulting Engineer to the Houghton-le-Spring District Gas Company. He was a Freeman of the Goldsmiths' Company of the City of London.

Mr. Drury will long be remembered for his services to the Industry, in whose activities he took the most lively of interests. At the time of his death he was undertaking his second term of office as President of the North of England Association, having previously filled the chair in 1898-99. It was chiefly for his pioneer work at Sunderland, however, that he will be remembered. During his residence there the Hendon Works were largely extended and modernized, and under his able direction installations of both West's and de Brouwer stoking machinery were introduced into the horizontal retort house many years ago. In addition, he was responsible for the entire reconstruction of the Ayres Quay Works, trebling its productive capacity on an extremely difficult site. This work included the first installation of Dessau vertical retorts in this country, the original plant consisting of six beds of ten retorts each, which created considerable interest in the Industry at the time. He was awarded the H. E. Jones Medal for a Paper, which he read before The Institution of Gas Engineers, on this subject in 1911.

In Mr. Drury's passing the Industry has lost an able adminstrator, a far-seeing engineer, and a shrewd counsellor, while many of its members have lost a friend, whom it will be hard to replace.

Mr. Drury leaves a widow, two sons, and two daughters, to whom the sympathy of the Industry will go out in large measure in their sad bereavement.

Many of Mr. Drury's professional colleagues attended a memorial service in St. John's Church, Newcastle, on Friday, at the same time as another memorial service at St. Ignatius's Church, Sunderland, which was attended by members of the staff of the Sunderland Company.

An Appreciation by Mr. Herbert Lees

When the Directors of the Sunderland Gas Company appointed Charles Dru Drury to the position of Superintendent of their Hendon Works and subsequently as Chief Engineer of their Undertaking they made a great contribution to the technical skill of gas undertakings in the North of England. His training and early experience with the South Metropolitan Gas Company under the late Dr. Charles Carpenter, together with his natural ability, fitted

him while yet in his twenties to fill a highly responsible position. Throughout the years of his service with the Sunderland Company he was a great asset to the North of England Gas Managers' Association. In 1898 he became President of the Association and had previously made at least one useful contribution to its Transactions, and a year ago was elected President a second time. It is interesting to read the two Addresses he gave on those occasions which show that, notwithstanding the space of 40 years between them, there was the same intimate knowledge of what was taking place in the Industry, and the same care in expressing his views to his audience. This was characteristic of all his work.

The writer remembers that on one occasion when three Papers on Vertical Retort Installations were submitted to The Institution of Gas Engineers one of the speakers remarked that Mr. Drury's Paper was characterized by carefulness. Those who knew Mr. Drury's work will appreciate how apt that description was. It marked all that he did, even to his hand-writing, which never lost its firmness. For that Paper he was awarded the Institution Gold Medal for the best Paper, and the "H. E. Jones London Medal" for the best Paper on an engineering subject.

Mr. Drury's work for the Industry was by no means confined to contributions to the technical organizations or in what might be expressed "in the limelight." His work on Committees in the District and at Headquarters was considerable.

In his 1898 Address previously referred to he had something to say about the strained relationships between employers and employees, and when the Federation of Gas Employees was formed 21 years ago he took his share of the work of bringing about a better state of things, and was always helpful in the direction of peaceful negotiations.

His work for Education under the Scheme of The Institution of Gas Engineers was painstaking, and his desire to promote the interests of the students was always present.

These words but feebly describe the character and work of the late Charles Dru Drury and by no means cover the ground of his activities. He was a man of deep convictions and of noble character whom it was good to know.

* * *

The death took place on April 24 of Mr. THOMAS BRYAN PEARSON, Chairman of the Pontypool Gas Company. He was seventy-four. Mr. Pearson started his career in the Gas Industry at his home town, Leicester. He later went to Cardiff, subsequently being appointed Secretary of the Pontypool Gas and Water Company. In 1900 he was made Manager, while still retaining the post of Secretary, and in 1922 he became Managing Director. For the last year he had also been Chairman of the Company. He was also Chairman and Secretary of the Pontypool Electric Light Company.

* * *

We regret to announce the sudden death of Mr. WILLIAM THOMAS DEAN, at the age of fifty-five, from heart failure. Mr. Dean had been associated with Holophane, Ltd., for over thirty years, in the positions of Sales Manager and Managing Director for the past three years.

* * *

The death occurred last week of Mr. JAMES MOORE, for forty-five years an employee of the Alliance and Dublin Consumers' Gas Company, and a former Manager of the Company's Works at Bray, County Wicklow.

* * *

We regret to announce the death on April 19 of Mr. FREDERICK CHARLES TILLEY at Bournemouth in his seventy-fifth year. He was connected with the Gas Industry throughout his business career with Messrs. Tilley Brothers, Brent Works, Hendon—a business which has been established upwards of a hundred years. Mr. Tilley was Chairman of the Society of British Gas Industries in 1923-24, and even up to the time of his death he took an active interest in the Industry's affairs. He was a member of both The Institution of Gas Engineers and the Institution of Mechanical Engineers. Among other activities he was a Director of Messrs. Peebles & Co., Ltd., of Edinburgh.

* * *

The death has occurred of County Alderman G. F. DRINKWATER, C.A., J.P., who was Chairman of the Hyde (Cheshire) Gas Company for more than a quarter of a century and, since it became the North Cheshire and District Gas Company in July, 1938, had been Chairman and Treasurer. He had been a member of Cheshire County Council for 20 years.

* * *

We regret to announce the death on April 25 of Mr. FREDERICK PURTON, Sales Director and Manager of the Expanded Metal Company, Ltd.

Association of Tar Distillers

Fifty-Fourth Birthday Party

In pre-war days the Association of Tar Distillers generally held its annual dinner at some West End restaurant on the night before the Derby, as a preliminary to a music hall or some Victorian equivalent of the modern night club. Nowadays its members and guests dine at the Savoy Hotel, but the dinner has lost little if any of its happy informality. The attendance on April 27 again constituted a record, and there were, as usual, many distinguished guests, including Mr. R. H. Cross, Parliamentary Secretary to the Board of Trade, Lord Dunmore, Sir David Milne-Watson, Sir Walter Benton Jones, Sir Leonard Browett, and Sir Duncan R. Wilson. Messages of good wishes were received from Lord Runciman, Lord Fitzwilliam, Lord Falmouth, Lord Riversdale, and Dr. J. A. Roelofsen. The President, Mr. H. E. G. West, was in the chair, and Mr. Stanley Robinson, President-Elect, in the vice-chair.

Mr. STANLEY ROBINSON proposed the toast of the guests, and expressed the hope that Sir David Milne-Watson would for many years continue to lead the many organizations associated with the tar industry over which he presided to-day. As a pure tar distiller he appreciated the presence of Sir Walter Benton Jones, one of the leaders of the coke oven industry, and they were also pleased to see two co-operating competitors in Mr. P. M. Waller and Mr. G. R. Llewellyn, who were always willing to co-operate with them. The Association of Tar Distillers was the oldest trade association in the country and represented 95% of the crude tar distilled.

Mr. R. H. CROSS, responding, confessed that in anticipation of his speech he had sought some advance information and had discovered that the notes provided for him were identical with those supplied to two of his colleagues who had attended the dinner in previous years. [Laughter.] Co-ordination in industry, he said, provided a mouthpiece with which an industry could address the Government; an excellent exercise for the industry and sometimes a wholesome thing for the Government, provided the mouthpiece was not opened too widely. He heartily supported the idea of organizing to secure a legitimate share of the overseas markets which would be theirs on any fair basis of competition.

Sir DAVID MILNE-WATSON, proposing the toast of the Association, said efforts had been made to form the tar distillers and the gas and colliery undertakings into one homogeneous whole with a view to the scientific development of those industries. He believed that so much depended in these days on national effort that the only thing for their great industries was to develop on those lines. There were enormous questions, such as getting oil and petrol from coal, which could be solved only on a large-scale basis. It was impossible for even the largest individual company or group of companies to do it for themselves; it must be a united effort if it was to be done at all. If this country was to prosper as it had in the past they had got to forget some of their individualism and sink their desires to run their business entirely according to their own ideas. "I am perfectly certain," said Sir David, "that if we are to get on and meet these totalitarians and their methods we must be prepared to pool our knowledge and work and selling so that we can speak as a nation and not as individuals."

Sir WALTER BENTON JONES, seconding the toast, said the coal carbonizing industries had a long way to go yet. He saw no reason why the time should not come when all fuel which had to be used in the solid state should not be carbonized coal. He believed that in time to come all coal would be carbonized and all the gaseous and liquid products would be turned at once into oil. There were other possibilities in the course of development, of making synthetically oil from carbonized fuels. That was a subject in which he was greatly interested but, thank goodness, not financially. [Laughter.] More and more people were becoming interested in the subject of oil from coal, and the more widely the problem was known and the more widely the possibilities were advertised, the sooner would the problem be solved.

Colonel W. A. BRISTOW also supported the toast and pleaded for more concerted action in the carbonizing industries with a view to the development of markets and the improvement of methods of producing better fuels.

The PRESIDENT briefly responded to the toast and proposed an additional toast, that of Mr. J. Davidson Pratt, Secretary of the Association, and his staff. Replying, Mr. Davidson Pratt said most of the credit for the work of the Association was due to Mr. R. Murdin Drake, Mr. A. J. Holden, and the office staff.

In celebration of the 54th birthday of the Association, a brochure was distributed to the members and guests reviewing the history of the Association and containing three full page sketches by Heath Robinson.

Letter to the Editor

Retention and Development of the Domestic Load

SIR,—During the discussion on my Paper at the recent Joint Gas Conference in Birmingham, Mr. R. J. Rogers challenged my statement that a 7-radiant gas fire costs half as much as a cooker, and while I agree with him that portable gas fires are available costing less than 20s. and inset fires at about 30s., the fact remains that a modern hearth type 7-radiant fire with self-lighting device costs about £3, which is about half the cost of a vitreous enamelled cooker. I had hoped that the brief description of the fire and cooker given in my comparison would indicate the two appliances which I had in mind. It is well to remember that the potential market available for gas fires, &c., is much greater numerically than that for cookers. I fully agree with Mr. Rogers that undertakings should not expect more than a reasonable profit from the sale of appliances, and in the case of the more popular lines the margin should only be sufficient to cover overheads. On the other hand, in making comparisons of cost and selling prices, the cost of fixing must not be overlooked. I do not dispute Mr. Rogers' statement that the cost of the fuel is of greater importance than the cost of the appliance, but I would remind him that "half price" gas or thereabouts is rapidly becoming more and more common.

Mr. Potterton referred to my statement that gas-fired central heating is unlikely to be installed in houses of medium size. The size of house in mind was one costing from £700 to £1,000. I agree with him that there is a large potential central heating load in houses costing £1,000 upwards. The domestic central heating boilers in Bradford have each an average output of over 80,000 B.Th.U. per hour, and the majority have been installed in large houses built in pre-war days and costing upwards of £2,000 each.

Mr. Masterman's reminder that on account of the seasonal load factor an expansion in space heating must be accompanied by an increase in the water heating load is timely. Mr. Masterman referred to the danger of over-emphasizing the necessity for cheap appliances, in that it may lead to increased maintenance costs, and all will agree that this is most undesirable. The point I endeavoured to make is for all manufacturers to supply standardized cookers, fires, radiators, and water heaters in two or three sizes. By a reduction in the number of patterns, dies, &c., and also by refusing to supply on such standardized appliances any special feature, except at a substantially increased price, the manufacturers would, I am confident, be able to effect considerable reductions on present prices. In his excellent Paper, to the B.C.G.A. Conference at Brighton, Mr. R. J. Rogers suggested that undertakings should avoid making individual requests for slight modifications in a given design. I suggest that it should be possible for the manufacturers to get together and agree to make a substantial increase in price for any such modifications. If this is done, it will help to reduce costs, but some degree of standardization of the popular lines is also essential. By all means leave the high grade appliances outside the scope of standardization, thus leaving a means for each manufacturer to retain to some extent his own individuality. The same remarks apply to meters, and I cannot refrain from again quoting the example of the optional prepayment mechanism. This was demanded by the Industry, and each manufacturer set out to develop and produce his own optional mechanism at enormous cost. The undertakings were not called upon to pay any extra price for this complicated and costly mechanism, and the result was that it was in almost universal demand. The waste of time and money which has accompanied this policy is clearly seen when it is remembered that only a very small percentage of these mechanisms is used as optional and would never have been ordered had a substantial increase in price been asked for them. It is interesting to note the variety of gas meters in the sizes most largely used which have to be stocked by manufacturers to meet the requirements of gas undertakings. They are as follows:

Lights type	3 lt.	5 lt.	10 lt.	20 lt.
Standard meters	No. 2	No. 3	No. 4	
High capacity meters	100 cu.ft.	125 cu.ft.	250 cu.ft.	
Small case high capacity meters ..	100 cu.ft.	200 cu.ft.		

Each of the twelve sizes of meters has to be stocked as:

Ordinary meter	Open top meter
Prepayment ,,	Closed top ,,

Further, the following varieties of prepayment meters have to be stocked in all the above sizes and types:

Single coin meter	1d.
,, ,, ,, ...	1s.
Duo coin ,, ...	At undertaking's option
Optional ,, ...	At consumer's ,,
Tariff ,, ...	—

Although this is by no means a comprehensive list of all the types, I think it is sufficient to demonstrate the absolute necessity of a large degree of standardization of meters, and, as suggested in the case of appliances, those outside the standard range should be substantially higher in price.

With regard to a Central Laboratory, I was pleased to read a letter recently in the "JOURNAL," in which Mr. G. M. Gill gave his support to this suggestion. The majority of undertakings have not the facilities for carrying out examinations and tests of new appliances as they come on the market. Those undertakings who are able to carry out tests to ascertain if these new appliances are entirely suitable and satisfactory in performance generally are carrying out work which would be done more satisfactorily and economically at a Central Laboratory, the cost of which could be shared by the subscribing undertakings.

In making my pleas for standardization of the popular lines of appliances and of meters, and also for a Central Laboratory, I fully appreciated there was nothing novel in the suggestions, but I do submit that we are now living in vastly different times and under highly competitive conditions, and it is becoming increasingly urgent for both the undertakings and the manufacturers to face up to these essentials. The Industry must not only retain its domestic load, but must extend it. Cheap gas by means of promotional tariffs, and standardization of appliances and meters, are means to this end.

Yours, &c.,
G. E. CURRIER.

Bradford Gas Department,
April 28, 1939.

The Institution of Gas Engineers

Members of The Institution of Gas Engineers will be welcome at a meeting of the Institute of Fuel to be held in the Lecture Theatre of the Geological Society of London, Burlington House, Piccadilly, W. 1, on Thursday, May 11, 1939, at 6 p.m. A Paper will be given by Dr. J. G. King, F.I.C., on "The Blending of High Volatile Bituminous Coals in Gas Manufacture" and will be followed by a discussion.

Members will also be welcome at the Annual General Meeting of the Illuminating Engineering Society to be held, by kind permission, in the Lecture Theatre of the Institution of Mechanical Engineers, Storey's Gate, London, S.W. 1, on Tuesday, May 9, 1939, at 6.30 for 7 p.m., at which Mr. Percy Good, M.I.E.E., F.C.G.I., will present his Presidential Address. Light refreshments will be served at 6.30 p.m. Tickets for this Meeting can be obtained from the Secretary, The Institution of Gas Engineers, 1, Grosvenor Place, London, S.W. 1.

Copies of the following recently issued British Standard Specifications can be obtained from the Secretary, The Institution of Gas Engineers, 1, Grosvenor Place, London, S.W. 1, at a cost of 2s. each: No. 602—1939.—Lead Pipes for Other than Chemical Purposes, and No. 835—1939.—Asbestos Cement Flue Pipes and Fittings (Heavy Quality) for Domestic Heating Stoves.

Solving the Hotelier's Problems

Increased comfort for visitors and a solution to many of his service problems reward the progressive proprietor of an hotel or guest house who remodels or plans his premises on labour-saving lines. By a wise choice of fuel he can make definite savings in such items as fuel handling and stoking, chimney sweeping, cleaning and furnishing renewals, as well as ensuring a contented clientele. Saving of unnecessary work, too, enables him to keep his wages bill at an economic level.

Valuable information on the way in which these economies can be achieved and the premises made more attractive to visitors is contained in "Hotels and Boarding Houses"—*A Thousand and One Uses for Gas*, published by the British Commercial Gas Association. Illustrating its arguments by a large number of photographs of modern premises, this booklet covers every aspect of fuel planning in the up-to-date hotel. The heating of entrance halls, public rooms, and bedrooms; constant hot water supply; and the equipment of kitchens are dealt with very fully; and there can be no doubt that a perusal of the brochure will suggest to owners of hotel premises of all sizes a number of worth-while ideas for the improvement of their premises with the adoption of gas apparatus. Copies can be obtained, free of charge, on application to the British Commercial Gas Association.

News of the Week

The Output of Gas from the Chesterfield Corporation Gas Department during the past twelve months amounted to 833,213,000 cu.ft., which is a record increase of 14·2% over the previous year's output.

Experimental Public Lighting is to be installed in Fleetwood Avenue by the Herne Bay Gas Company, who have been granted the necessary permission. Permission is subject to no liability falling on the Urban Council, and to the installation remaining during the pleasure of the Council.

A Thousand Workmen disposed in squads over a wide area of West Yorkshire are now engaged on the laying of the 16,000 tons of high-pressure gas mains for the West Yorkshire Gas Grid scheme promoted by the United Kingdom Gas Corporation. It took nine draughtsmen over three months to prepare the 260 maps and drawings required before the grid laying could be begun. Excavation will entail the removal of 60,000 tons of earth and rock. As the pipes are laid, every joint and valve is tested at 60 lb. per sq.in. pressure.

A Widespread Electricity Failure on April 22 deprived many towns of current in the South-West Midlands. Among these towns were Abergavenny, Banbury, Bromsgrove, Cheltenham, Hereford, Evesham, Ledbury, Leominster, Redditch, Shipston, Stratford-on-Avon, and Tewkesbury. The failure varied in duration from an hour to an hour and forty minutes. Commenting editorially on the failure, the *Gloucestershire Echo* for April 24 said it was not so much concerned with the official explanation of the breakdown as with the frequency with which such explanations become necessary.

The Closing-Down of the Gas-Works at Tickhill, Yorks., by the owners, Power, Light, and Heat, Ltd., in May, was discussed at a recent meeting of the Urban District Council, when it was stated that enquiries were being made into the matter.

Opening a Local "Brighter Homes" Exhibition, Mr. A. F. Ames, Gas Engineer to the Burnley Corporation, stated that there were now about 9 million gas cookers in use; thus three families out of four in Great Britain use gas for cooking purposes. Estimates of the total domestic heat requirements showed that this demand was met in the following proportions, after taking into account the efficiences of the various fuels: Coal, 52½%; anthracite, 4%; gas, 18½%; coke, 18½%, oil, 4%, electricity, 2½%.

Entries Surpassing in Number All Expectations and coming not only from the City and district but from places far afield in neighbouring counties marked a competition run by the Exeter Gaslight and Coke Company in connexion with the film "The Young In Heart," which was being shown at one of the City's picture theatres. Prizes of gas fires were offered for the most appropriate last lines of a verse concerning the "New World" No. 345 "Regulo"-controlled gas cooker, which, like the film, was shown in Exeter that week for the first time. The prize was awarded to a lady whose effort was as follows:

"A '345' will give you leisure,
Time for rest, and time for pleasure;
'Young In Heart' you all could be,
For '345' will give all three."

Midland Association of Gas Engineers and Managers

Spring Meeting at Birmingham

By kind invitation of the Birmingham Gas Committee, the Spring Meeting of the Midland Association of Gas Engineers and Managers will be held in Birmingham on May 18, 1939. During the morning small parties will be escorted around the Windsor Street Gas-Works, special attention being devoted to A.R.P. measures adopted, including the camouflaged gasholder. For lunch, visitors will assemble in the Conference Hall at the Lord Street Offices, when the Lord Mayor of Birmingham will take the chair. After lunch the visitors will be conveyed by 'buses to the Distribution Pipe Store Yard of the Gas Department, Duddeston Mill Road, to witness a demonstration of the procedure recommended for dealing with fractured mains. A 70-ft. length of 30-in. diameter main will be employed; gas will be admitted at 7 in. pressure at one end and will emerge on fire from the opposite end. The fire will be brought under control by the method described in the "JOURNAL" for Nov. 16, 1938, p. 560, by Mr. R. G. Marsh, and extinguished while the main is still under gas pressure. After the demonstration tea will be served in the Conference Hall.

Amalgamation and Grouping

Middlesbrough and Stokesley.

For Approval by Resolution a draft of the Special Order for which the Middlesbrough Corporation applied to the Board of Trade under the Gas Undertakings Acts, 1920 to 1934, has been laid before both Houses of Parliament. One of the objects of the Order is to transfer to the Corporation the Undertaking of the Stokesley Gas Company.

Domestic Science Teachers at W.G.C. Conference

Possibly the thought that there is safety in numbers accounts for Mr. R. N. LeFevre's *sang froid* in this group taken on the first morning of the conference for teachers organized by the Women's Gas Council at Berridge House, London. The conference was addressed by Mr. LeFevre, who is, of course, Officer-in-Charge-of-Training, Gas Light and Coke Company, Mrs. Elleen Murphy, Miss Godby, Home Service Adviser, Gas Light and Coke Company, Miss Garrett, Miss M. B. Robinson, and others, and included a number of interesting visits.

At the "Ideal Home" Exhibition

The fine "Cannon" exhibit at the *Daily Mail* "Ideal Home" Exhibition. Features of the stand were the "Talbot" and "Henley" cookers, which attracted much attention, as well as the firm's well-known "Inclined" fires, "Wallflower" heaters, "Beacon" radiators, and "Portray" heaters.

Spring Comes to Harrogate

A delightfully fresh reminder of Spring from the window of the Showrooms of the Harrogate Gas Company.

An Effective Demonstration

A very full and representative gathering of the Press enjoyed the hospitality of Radiation Ltd., on Wednesday last at the Savoy Hotel, where a range of the latest "New World" cookers was very effectively displayed and demonstrated.

Guests were received by Mr. H. M. Thornton and Mr Cyril Davis, Radiation Managing Directors, and appeared to enjoy themselves thoroughly. A sample "New World" simultaneously cooked dinner of six courses was prepared and exhibited, and praised by the many experts present.

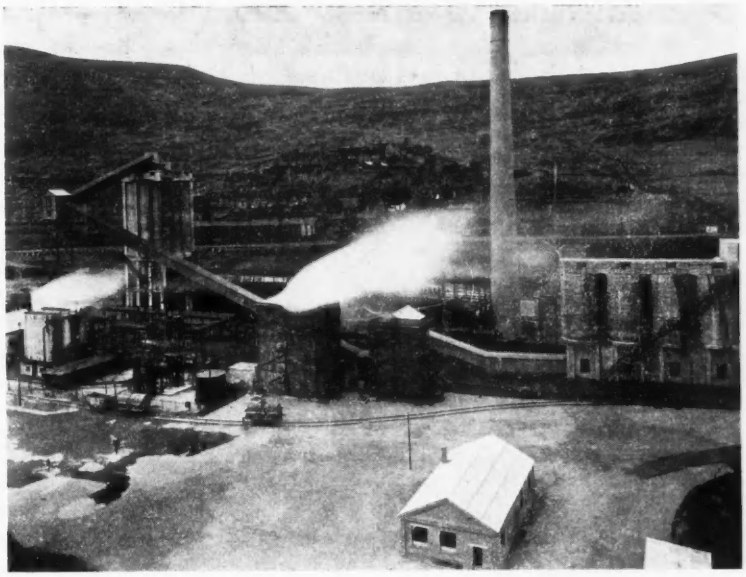
The photograph shows Mr. Thornton, Mr. Cyril Davis, and Mr. C. S. Rose receiving a guest.

Salesmen's Day at Caxton Hall

Over two hundred delegates from nineteen Circles attended the annual "Salesmen's Day" meeting at the Caxton Hall, Westminster, on April 28. The Chair was taken by Mr. H. D. Madden, Executive Chairman of the B.C.G.A., who was supported by Mr. R. Robertson, First Vice-President of the B.C.G.A. and President of the Institution, Mr. W. D. Rowe, Manager, Mr. P. J. Lucas, Secretary, and Chairmen and Secretaries of Circles. In the course of his welcome to the delegates, Mr. Madden, stressing the importance of salesmen keeping up-to-date, recalled a conversation he had some years ago with Mr. W. R. Herring, who was then Engineer and Manager of the Edinburgh Gas Department, in the course of which Mr. Herring said: "To you juniors I would recommend one thing: Read your 'GAS JOURNAL' from cover to cover. Look at the advertisements; see the trend in modern appliances, and then read the technical articles." Mr. W. D. Rowe reported that the Circles were growing in strength and enthusiasm. He was glad to say that, whereas in the past in Scotland there had been but one Circle they now had three. They were also in the process of making arrangements for Circles in North Wales and Cumberland.

A full report of the meeting will be found in this month's "GAS SALESMAN."

One of the six new road tankers built for the National Benzole Company to supplement their already large fleet of modern vehicles. The tank, which has a capacity of 2,500 gallons, is divided into five equal compartments. The new vehicles will assist considerably in dealing with the rapidly increasing demand for home-produced motor spirit.



General view of By-Product Coking installation, showing from right to left the Coal Blending Bunker and parts of the By-Product and Benzole Recovery Plants, with the Oven Battery behind.

By-Product Coking Plant at Ebbw Vale

AMONG interesting features of the by-product coking plant at Ebbw Vale, which the Press were recently invited to inspect, are the arrangements made for heating the coke ovens alternatively with blast furnace gas or coke oven gas, and the equipment provided for blending coals to secure the correct characteristics for obtaining the best products.

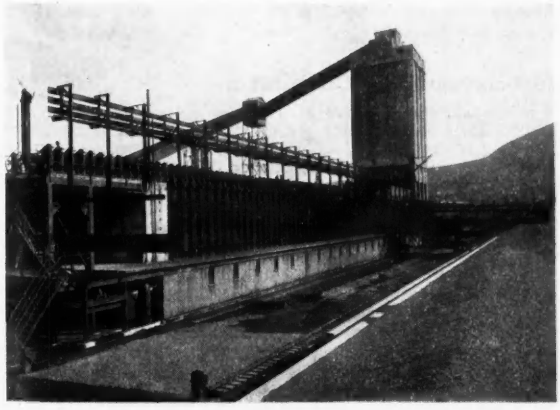
Blast furnace gas is the normal fuel. The utilization of this low-grade gas achieves considerable economy, as it frees the whole, instead of only a part, of the richer coke oven gas for uses on the steel-works, for which it is ideally suited. The estimate of resultant economy is based on the experience of other big steelworks. The arrangements made are very flexible, for any number of ovens can be changed over readily from one fuel to the other.

The blending plant enables correct blends to be obtained with differing coals from a variety of sources.

The coke-oven plant comprises a fully equipped battery of 65 Woodall-Duckham Becker Ovens; coal handling, blending, crushing and storage equipment; coke screening and handling plant; by-product recovery plant; benzole recovery plant; and water cooling and recirculation equipment.

Coal Handling, Blending, and Crushing Plant.

The coal wagons are mechanically emptied by a side discharge tipper into a hopper, whence the coal is conveyed by a belt to a crusher. Fine coal is separated, by-passes the crusher, and joins the crushed coal beyond it. The coal then travels on belts to a range of eight reinforced concrete blending bunkers, each of 400 tons capacity. Different coals are stored in separate bunkers. Beneath each bunker outlet is a revolving feed table, with an adjustable plough, the setting of the various ploughs determining the rates of discharge from the feed tables on to a belt running beneath the bunkers. In this way are determined the proportions in the blend of the coals contained in the respective bunkers.



The "pusher-side" of the Battery, showing the Ovens' Coal Bunker and the Pusher-Machine.

The belt feeds the blended coal to one of two hammer-mills, where it is pulverized and intimately mixed. It is then delivered by belts to the top of a 3,000 tons capacity reinforced concrete bunker at the oven battery and is distributed therein by a rotating shuttle belt.

The Oven Battery.

The 65 ovens each hold just under 14 tons of coal, and their total daily throughput is 1,370 tons.

An electrically operated charging car carrying four steel hoppers runs on rails on the battery top platform, this platform being extended beneath the bunker to give the car access for loading. Arrangements are made for the automatic measurements and weighing of the coal fed into the hoppers, for mechanically assisting its flow into the ovens, and for fool-proofing as far as possible the operation of the car.

The heating system, as with all modern coke ovens, follows the regenerative principle.

After cooling and screening the furnace coke is either conveyed on a long belt to the blast furnace storage bins and there distributed by a shuttle conveyor, or it is loaded into wagons. The smaller sizes are stored in bunkers below the screening station, whence they are loaded into wagons. The weight of coke passing over the furnace coke conveyor is automatically recorded.

The installation includes electrical detarrers and ammonia and benzole recovery plants.

The two blast furnaces have been entirely reconstructed. There is an electrostatic gas-cleaning plant alongside, having a holder in which 2,000,000 cu.ft. of blast furnace gas can be stored.

Generating plant in the power-house comprises one 12,000 kW turbo-alternator, with, as a standby, three others of 5,000 kW.

The boiler plant consists of three steam generators, each having a maximum continuous rating of 100,000 lb. of steam per hour. This plant satisfies the entire demands of the steelworks, and in view of the surplus gas available from the coke oven and blast furnaces, the boilers are designed for firing by either pulverized fuel or coke-oven or blast furnace gas. The steam pressure is 450 lb. per in., but the boilers will normally operate at 375 lb., with a total steam temperature of 675° F.

The furnace installations are all the latest of their type. Many are unique in British industry. The steelworks plant is laid-out for flexibility, and it is possible to produce direct from the open-hearth, Bessemer, or duplex.

Western Junior Gas Association

Annual Meeting and President's Day

The Annual General Meeting of the Western Junior Gas Association was held at Bristol on Saturday, April 22, 1939. A representative gathering of the members assembled at the Canon's Marsh Gas-Works of the Bristol Gas Company, where they were welcomed by Mr. Sydney Smith, Assistant Engineer and Works' Manager. In welcoming the members he expressed apologies on behalf of his Chief, Mr. R. Robertson, who was attending the B.C.G.A. Conference at Brighton. The tour of inspection of this Works, which produces 3-3½ million cu.ft. per day, proved most interesting. The gas is dried and benzole recovered.

Later members made their way to the Company's Head Offices, "Radiant House," where they were entertained at tea through the courtesy of the Directors of the Bristol Gas Company. In replying to the vote of thanks moved by the President, Mr. Alexander Tran (Reading), Mr. S. E. Halliwell, Secretary and Commercial Manager of the Bristol Gas Company, said they were always pleased to assist in the work of the Junior Association.

The Annual General Meeting followed tea. The minutes of the last Annual Meeting held at Swindon were read, confirmed, and signed.

The Report of the Council having been circulated to all members was taken as read. There being no comments, it's adoption was formally moved by Mr. F. W. SANSOM, seconded by Mr. W. BARBER. The proposal included a vote of thanks to the Secretary, Mr. K. L. Clark, for his work. In acknowledging Mr. CLARK said that having been elected Junior Vice-President, it was his intention to relinquish his secretarial duties.

The adoption of the balance-sheet was proposed by Mr. J. R. MARTINDALE, supported by Mr. F. G. CRAXFORD. The thanks of the Association to the Hon. Treasurer, Mr. A. B. Horsfield, was also moved and carried with acclamation.

The thanks of the Association to the Hon. Auditors was moved by Mr. S. B. JONES, and carried with acclamation.

The ballot for members of Council resulted in the election of Mr. T. W. CLAPHAM (Bristol) and Mr. A. G. HOLTAM (Cheltenham).

There being no other nomination for Officers, the following list of Officers for Session 1939-40 was formally moved by the PRESIDENT and adopted.

President.—Mr. A. Bell (Exeter).

Senior Vice-President.—Mr. S. Smith (Bristol).

Junior Vice-President.—Mr. K. L. Clark (Weston-super-Mare).

Hon. Treasurer.—Mr. A. B. Horsfield (Bristol).

Hon. Secretary.—Mr. K. L. Clark (Weston-super-Mare).

Hon. Auditors.—Mr. J. F. Marlow (Weston-super-Mare), Mr. H. Randall (Stroud).

Council.—Mr. F. W. Sansom (Exeter), Mr. J. W. Denton (Torquay), Mr. S. Hole (Bath), Mr. J. T. Spencer (Weston-super-Mare), Mr. T. W. Clapham (Bristol), and Mr. A. G. Holtam (Cheltenham).

Ex-Officio.—Mr. F. Blackburn (President, Southern Association of Gas Engineers and Managers), Mr. W. A. Howie (Hon. Secretary, Southern Association of Gas Engineers and Managers).

The President gave the Prizes for the best Papers during 1937-38 Session. The first prize went to Mr. A. G. Holtam and the second prize to Mr. F. A. Butt. The President said it had been hoped that Mr. Robertson would make the presentations, but this had proved impossible. He mentioned that Mr. Holtam's Paper had also been awarded the S.B.G.I. Silver Medal.

Mr. A. BELL (Exeter) then called upon the President to deliver his Address, which will be published in an early issue.

In moving a vote of thanks to the President for his Address the SENIOR VICE-PRESIDENT expressed his agreement with the President on the question of coke marketing. He said also that Mr. Tran had been well supported during his year of office and hoped for a continuance of that support next year.

Mr. SYDNEY SMITH, seconding, said that Mr. Tran's remarks appealed to him more from the benzole aspect. They were recovering benzole at all three Works in Bristol. The vote of thanks was carried with acclamation.

The PRESIDENT thanked those present for the way in which they had shown their appreciation of his Address. He drew the attention of members to the Summer Meeting, June 17, 1939, which would be a visit to the Works of the Bournemouth Gas Company, and he expressed the hope that there would be a good gathering. He also moved that the thanks of the Association be extended to the guides who had taken parties round the works that afternoon.

Gas Undertakings' Results

Buenos Aires.

In the report submitted at the annual general meeting in London of the Primitiva Gas Company of Buenos Aires, Ltd., the Directors stated that the balance of Revenue Account for the year ended Dec. 31 last, converted at par of exchange, amounted to £480,369, and, after meeting various charges, and adding the amount brought forward from 1937, there remained the sum of £265,122. A year ago the balance of Revenue Account amounted to £445,167, and the amount available to £257,339. The dividend is repeated at 2¼%, free of income-tax, as is the allocation to Contingencies Reserve at £20,000. The sum placed to Depreciation and Renewals Reserve is, however, increased from £95,000 to £100,000. There is left to be carried forward on the present occasion £77,634, as compared with £74,851 a year ago. The Directors pointed out that currency revenue at par of exchange again showed an improvement on the figures of the previous year. The increase had, however, been almost entirely absorbed by the further depreciation in the Argentine Peso which took place during the year, and by the additional charge for British taxation.

Caledonian Gas Corporation.

The revenue of the Caledonian Gas Corporation, Ltd., for 1938 was £27,102, from which is deducted £11,345 for income-tax, interest, and expenses. From the balance of £15,756 has been taken £8,034 for the 4½% Cumulative Preference shares and £570 for the 4½% Preferred Ordinary shares, leaving £7,151, to which is added £318 brought forward. A dividend of 3½%, less tax, is recommended on the Ordinary shares, taking £6,394, and the carry forward is £1,075.

Severn Valley Gas Corporation.

The Directors of Severn Valley Gas Corporation, Ltd., which controls 26 West of England Gas Undertakings, recommend a final dividend of 2¾%, less tax, on the ordinary shares of the Corporation, making with the interim dividend a total dividend of 5½%, less tax, for the year. This is the same as was paid last year. Total net revenue for the year ended March 31, 1938, after loan interest and all other expenses, including taxation, shows an increase at £49,601, against £47,523 in the previous year. After payment of the preference dividend for the year and the interim ordinary dividend, and after providing for the final dividend recommended on the ordinary shares and for a dividend of 6%, less tax, on the deferred shares (same as last year), the carry-forward to next year's accounts is £12,481, compared with £10,603 brought in. The accounts disclose that the issued capital of the Corporation is now £1,381,291, of which £596,292 is in 4½% cumulative preference shares of £1 each, £684,999 in ordinary shares of £1 each, and £100,000 in deferred shares of £1 each. Investments in subsidiary companies amount to £1,441,562, against £1,235,555 a year ago, and total assets amount to £1,538,092, against £1,307,639. Included with the accounts is an interesting table showing the different Gas Undertakings in which the Corporation's funds are invested.

South-Eastern Gas Corporation.

For the year ended March 31, 1939, the South-Eastern Gas Corporation, Ltd., are repeating the dividend on the ordinary shares at 6%, but whereas twelve months ago the balance carried forward was £48,692, on the present occasion there remains a sum of £69,321 to be carried to the current accounts. The net revenue for the past year, after providing for debenture interest and all other expenses, amounted to £162,399, which compares with £156,607 for the previous year. At present the authorized ordinary share capital is £2,000,000 in shares of £1 each, and of these only 3,703 now remain unissued. Accordingly, in order to provide for possible requirements in the future, a resolution will be proposed at to-day's general meeting (a report of which will appear in the next issue of the "JOURNAL") to increase the authorized share capital, which already includes 2,000,000 £1 preference shares, to £5,000,000, by the creation of 1,000,000 additional £1 ordinary shares. There is given in the report a list of the Corporation's holdings in twenty-seven subsidiary Companies.

Wellington Tube Employees at Pantomime

The employees of the Wellington Tube Works, Ltd., Great Bridge, Staffordshire, spent a most enjoyable evening on April 13 at the "Robinson Crusoe" Pantomime at the Alexandra Theatre, Birmingham, as the guests of the Chairman and Managing Director of the Company, Mr. Douglas W. Turner, and his Co-Directors.

It is interesting to note that the party took almost the entire capacity of the theatre.

The B.C.G.A. Conference

In last week's "JOURNAL" we published the Papers presented at the Conference of the British Commercial Gas Association held at Brighton and a report of the discussion on Sir Harold Hartley's contribution. To-day we give reports of the discussions on the remaining Papers.

Discussion on Paper by Mr. R. J. Rogers

Mr. A. W. SMITH (Birmingham): There is a certain psychological interest in reading a Paper presented so admirably by a gentleman who for so long was employed on the supply side and is now identified with the contracting side of the Industry. I am interested psychologically because our views change from time to time. It seems that Mr. Rogers has perhaps changed his views a little since the time when he was on the other side of the fence! I suppose it is natural that he has evidently at the back of his mind the idea that healthy supply undertakings mean many corpulent manufacturers. That can quite easily be understood.

I do not doubt that the record he gives of the efforts of the American gas companies rather make his mouth water, and that is why he is anxious that we should do the same. But, of course, everything depends upon local difficulties and local circumstances, and the circumstances in America, as he well knows, are rather different from those obtaining in this country. I suppose that in respect of cooking we are practically level with them; but when we are told that 74% of their houses in America are using gas-heated water and 56% are using gas for house heating, we appreciate that we have still a long way to go. Of course, house heating in America is rather different from house heating here. All the American houses have central heating systems, and when I was in America there was a very definite drive to get all the solid fuel systems converted to gas; a special converter was advertised in the showroom windows of all American gas companies, and as the result of a big drive they succeeded in changing over a large number of the central heating plants to gas.

If in the 74% of houses in America using gas for heating water Mr. Rogers includes the use of wash boilers, probably we are not very far behind the Americans, and I still think that we are doing fairly well, although I am not complacent in this matter. Those of us who are on the supply side are just as anxious as are any of the manufacturers to develop still further the domestic side of our business. It is evident that the price at which our commodity can be sold is a very important matter, and it must be kept as low as possible. When Mr. Rogers was with me years ago I think we rather came to the conclusion that gas was so essential a commodity in the house that the time would come when we should not have to tempt people by cutting the prices of appliances, but when the appliances would be supplied automatically by the builders of houses, in the way that coal fireplaces, grates, and ranges are supplied even up to the present time, and that the supply side should not be cut too far. In my opinion it is important that the sales and fittings side of the undertakings should bear a fair share of the cost of distribution and maintenance of appliances, leaving the engineers to make and distribute gas at the cheapest possible price. It may be necessary to increase the price of gas into the holder by installing plant for the elimination of the sulphur content. I think it is a very important point, and one which will perhaps more than any other affect our ability to hold the domestic load. We are all in full agreement with Mr. Rogers on that matter.

Flueless Appliances.

For a long time past we have stressed at all our meetings, and I am glad that Mr. Rogers has emphasized it, the necessity for the provision of ventilation flues in all rooms of private dwellings. I know I have been shot at several times with regard to our action at Birmingham, but it does seem to be a suicidal policy to fit flueless appliances in positions which are quite unsuitable, particularly in districts where the organic sulphur content is not reduced to a very low figure. It is quite possible that if you do reduce the sulphur content to a low figure you may be living in a fool's paradise, because although flueless appliances might be quite all right and quite harmless if properly constructed, fitted, and maintained, it always seems to me that there is great danger in having flueless appliances under the control of the consumer, examined by representatives of the undertaking only periodically. The more harmful products of combustion are odourless, and we might be heading for trouble, even though there might not be a sulphur smell. People ask why we refuse to fit portable heaters in living rooms in Birmingham while at the same time we fix cookers in rooms which have no flues to carry away the products of combustion. But I submit that there is a difference, because the cooker is not a whole time apparatus. I think Mr. Rogers was the first to place a hood over the cooker in his own house and to fit an electric fan to carry away the products of combustion. That, of course, meets any possible objection.

Mr. Rogers devotes a paragraph to the problems of the manufacturers; and it is very pleasing to know that the manufacturers have so few problems. One reason that has been suggested to me is that, when they have sold an appliance, we take over their troubles. We have had passages of arms on this matter many times privately, and I suggest it is not axiomatic that low cost leads to greater expenditure on the score of maintenance. In our own experience in Birmingham, the cheapest cooker we issue to consumers using gas through automatic meters was designed upwards of 25 or 30 years ago, and it gives far less trouble on the district than many of the more modern ones which are still being distributed on hire-purchase terms. It should be possible to combine modern appearance with the behaviour, convenience, durability, and ease of maintenance of the cookers of 20 years ago, which are still giving excellent service and are only changed because our consumers take a more æsthetic view of the furnishing of their kitchens.

The same argument can be used in the case of fires. Maintenance costs are increasing rapidly, and I am still of the opinion that these should be borne as far as possible by the purchaser if he desires amenities which we cannot afford to supply on ordinary terms to all our consumers.

Free Maintenance.

Mr. A. L. MORRIS (Cheltenham): I cannot quite agree with Mr. Rogers that the gas consumer is as little interested in the actual appliance for using gas as the average listener is interested in his wireless set as such. I feel that the average consumer is intensely interested in his appliances. I am very pleased to note Mr. Rogers' reference to national statistics, because I feel they would be very helpful in giving us an idea as to how things are going on. I am an official of a Holding Company which is taking steps in this direction for its groups. Where Mr. Rogers refers to maintenance, I presume he means free maintenance, and I do feel that its value cannot be too strongly stressed. I believe there are still quite a lot of undertakings which do not regard the routine of maintenance seriously enough, and that we should give free maintenance even though we might have to keep the price of gas a little higher; that free maintenance should apply to all types of appliances and lighting fittings.

Reference is made in the Paper to calorific values, and that is another matter which I think requires some consideration nationally. There is too much variance of calorific values throughout the country, and it would help the manufacturers, I think, if we could reduce that variance even if we do not adopt a standard calorific value. Apparently Mr. Rogers thinks that standardization of appliances would be impracticable. I feel that, if the manufacturers cannot agree to it, it is up to them to minimize the types of their own productions. The difficulty is that if one manufacturer introduces a new cooker or other appliance, we hear very soon afterwards that his competitors are bringing out another to compete with it.

Mr. C. BATEMAN (Harrogate): Dealing in the first place with the title, I think that, as a statement, this is the most important factor that we have to face in the Industry to-day. It is stated by Mr. Rogers that gas is a service and not a commodity. The cost of the service to the consumer is governed by the cost of the commodity, and this is the vital factor for any retention or development of any load. On the question of statistics, it is rather difficult to know what Mr. Rogers is really aiming at. Statistics are essential in every undertaking, but after all, the station meter is the index to the development of any load. Under the heading of "An Adequate Supply of Gas of Constant Quality," the points mentioned are essential, but I think the dis-

tribution system should be such as to cope with these requirements with the minimum of individual appliance governers, which are costly, a source of trouble, and added maintenance.

Domestic Tariffs.

With regard to the question of appliances, the Industry has, I think, met Mr. Rogers' points, and has extended hire-purchase, particularly with regard to cookers, in many cases to a period of ten years. On the other hand, the manufacturers have given no guarantee to the Industry for this period, and it is a debatable point as to whether the appliances should not be considerably cheaper in order that the purchase period can be curtailed, when the consumer has always an opportunity of having a modern appliance.

My Company has this year introduced a tariff for domestic consumers, which I firmly believe meets all the requirements both for consumer and Undertaking. May I say at the onset that it is a modification of the system at present in vogue at Brighton, and its inception in Harrogate has undoubtedly been partly due to Mr. Allum, the recently appointed Secretary to my Company, who until a short time ago was with the Brighton Company.

Primarily, the main factor which was kept in mind in the compiling of this tariff was the maintenance as far as possible of existing revenue, and from this the idea was to build up from existing consumptions. Put in another way, if we could show the consumer that with his existing consumption he would pay the same for his gas, but any extended use would cost him appreciably less, an increase in gas sales should be the logical outcome. It was therefore decided to fix the standing charge on a scale of average consumptions, beginning at 20 therms, and rising in blocks of 10 up to 100 therms. Each consumer's account was taken individually and his average consumption for the past year gave the group to which he belonged, and on this the basis of the standing charge was quoted. The further proviso was made that in no instance was this standing charge to exceed a certain maximum, such maximum to fall into two groups:

(*a*) For houses up to £25 net rateable value, a quarterly standing charge of 13d.

(*b*) For houses of £25 and over net rateable value, a quarterly standing charge of 2½% of the net rateable value.

In every case all gas consumed to be charged at half-price.

To deal with the larger domestic consumer—*i.e.*, the consumer over the average consumption of 125 therms per quarter, and also the large non-domestic consumer, the standing charge has been assessed on the following basis:

The average net gas charge for the preceding four quarters, *plus* main meter rent, was halved, and the resulting 50% taken as the standing charge.

The effect of this is to give the larger consumer an immediate benefit of half the main meter rent *plus* half the increase in the price of gas, which unfortunately had to be made in Harrogate this year to the extent of 1d. per therm. By this method, it will be quite clear that in the majority of cases consumers will obtain a slight benefit over and above paying for their gas on the flat rate of charging, and therefore it is an immediate but slight inducement to come on to the tariff.

Mr. P. PRINCE (Peterborough): I think Mr. Rogers has done well to call attention to the inroads made by the electrical industry into our domestic cooking load, and it is hoped that the figures given will disturb the present widespread complacency among gas undertakers. We may be assured that our contemporaries will not be content with their present position. In my opinion, we cannot be satisfied until every black cooker has come under the influence of the sledge-hammer.

Home Service Advisers.

In connexion with the retention of the cooking load one cannot over-estimate the value of *permanent* home service advisers on the staffs of gas undertakings, and I would like to suggest that the smaller undertakings which cannot afford to employ their own demonstrators should form themselves into small groups and engage qualified demonstrators on a joint basis.

Coming to the question of efficient installation, I should like to suggest the necessity for the smaller undertakings to provide refresher courses for fitters and salesmen, so that their staffs may be kept fully up-to-date with modern developments. Much of the value of the appliance makers' effort in producing more efficient appliances is often dissipated by too low a standard of installation work.

We all welcome the step taken by our Executive Committee in the formation of the B.C.G.A. District Committees; but their ultimate usefulness lies with the ordinary member. One hopes that the energy of these Committees will not be dissipated in routine business, but rather that they will attack urgent problems such as tariffs, group marketing, and the problems listed in the section of the Paper dealing with the incidence of the public lighting load.

Competition in New Estates.

Mr. WILLIAM CASH, J.P. (Past-President): This Paper brings together in a very adequate and very comprehensive manner some of the problems with which everyone of us, I suppose, is faced, and on which a good many of us have different and diverse views.

Some of us, of course, are very interested in the rapid development which is taking place in various estates, where there are new buildings. I would suggest that you should not be too frightened by the difficulty of getting gas introduced into the new estates. I have had experience elsewhere of cases in which we have been threatened that, unless we do certain things, gas will be excluded from the new houses, for no provision will be made for gas supply in the course of their erection. In several cases, however, by standing firm and saying that we are prepared to do certain things, but beyond those things we will not go, we have arrived at the ultimate result that gas has been introduced, and the estate people have made contributions towards the introduction of gas. I think it is really important to remember, especially in regard to the smaller class of house, that the person who will live there finds that gas is essential, and he will insist upon having a supply. Of course, it becomes a question of terms, and you have to consider how far you will go in that direction.

Then there is a really valuable suggestion concerning terms which should be offered in contiguous areas. Some difficulty has arisen in the past from the fact that a potential consumer has said to the gas undertaking's representative in his area, "Your price is so and so, but in the district I have just left I can get it for less money and on more favourable terms." If we try to ensure that the terms offered in the various areas, particularly in contiguous areas, are the same, we shall be making a move in the right direction.

Maintenance is occupying continually the attention of gas undertakings; maintenance free, of course, is a delightful thing to contemplate, but it costs money, and I think a good many of us feel that, although we will give labour free, any material that is required in connexion with maintenance ought to be paid for by the consumer. This matter has been under my consideration in two or three instances in connexion with the water supply industry, and I mention it as a case that is more or less parallel, although not exactly parallel. We have found that, by giving free washering of taps, we have substantially reduced the waste of water, and the cost of that free washering has been met by the saving of water which undoubtedly results. Some of the water undertakings now give their consumers postcards, so that, when taps require to be re-washered, the consumer can fill in a postcard to that effect and send it to the water undertaking, and the undertaking will send its own man to re-washer the tap or taps, without cost to the consumer. Although the practice might at first sight appear to be rather a matter of self-abnegation, at the same time it has been of benefit to the water undertakings.

The Author Replies.

Mr. ROGERS, replying to the discussion, said: I want to emphasize, regarding the American statistics, that they refer to new houses constructed in the United States in 1938. The figures do not represent percentages of the total number of houses. But they do show that in America, at any rate among those undertakings which send in their statistics, they are well aware of the progress or otherwise in respect of their domestic load. I purposely included the statistics because I fear that we have not such information in all our undertakings in this country. We know whether we are getting an increase in general domestic gas sales or industrial gas sales, and so forth, but I am quite sure that in many undertakings information is lacking as to the percentage of new houses in which either gas or electricity is used. The retention and development of the load is so important that the extra cost of getting the information together will be amply repaid.

I must say that the subject of flueless appliances is one in regard to which I have changed my point of view during recent years. Some years ago I was definitely opposed to the use of flueless appliances in living rooms and rooms such as those in which such appliances are fitted to-day. But my view at the moment is that we have to accept the buildings more or less as we find them, and we have got to say either that we will give up the load supplied to flueless heaters and make a free gift to the electrical industry in respect of the heating of those rooms, or that we must take certain slight risks. I did refer to the fact that the manufacturers and the laboratory staffs of some of the principal gas supply undertakings in the country have collaborated, and I think we have available to-day flueless heaters which, if we use a certain amount of discretion as to where they should be fitted, are bringing in a reasonable revenue to the gas undertaking. While it is not ideal, I feel that it is far better to take it that way than to forego that consumption altogether. I think we should exercise very much greater activity in the direction of the Government Departments and in advising builders and architects concerning the necessity for the provision of flues. I know this

question is a good old hardy annual, but I do urge that greater attention be paid to it, and I hope that something will be done by the District Committees, that they will get together and make an onslaught on all the builders and local authorities in their areas. I do not think we have done as much as we might have done; but it is so important, and I am convinced that if only we can ensure that flues are provided, the heating load will increase.

Comment was made by Mr. Smith concerning the problems of the manufacturers. He probably knows that the manufacturers have a few problems other than those I enumerated in connexion with the design of domestic appliances; but I wanted to condense my Paper as much as possible, and I do suggest that the problem is one, not only for the manufacturers, but also for those who are responsible for purchasing the appliances; it is just as necessary for the purchaser of appliances to consider the factors A to F (in the section of the Paper entitled "The Manufacturers' Problem") as it is for the manufacturer who has to design the appliances.

The PRESIDENT: I know I am voicing your views entirely when I express thanks to Mr. Rogers for a very valuable Paper. Reference has been made to the discussion of the subject in the districts, but I do not think the subject can be treated in exactly the same way in every district. What is perfectly easy and commendable in, say, the Northern districts, we should find very inapplicable in Southern districts.

I agree that where there is contiguity of areas there should be some similarity in tariffs. But a tariff which will suit one part of the country will not necessarily suit another. We have a tariff here which is the outcome of the work of two of our leading officials, Mr. Browne and Mr. Hyde Burton, and we hear to-day that it is applicable in an undertaking as far away as Harrogate. I think our tariff is more immediately applicable to the requirements of the public, but it certainly could not be used as an alternative to those obtaining in the Metropolitan area.

Mr. HAROLD C. SMITH (Tottenham): I am very glad to have this opportunity of seconding the vote of thanks to Mr. Rogers for his Paper, particularly as he has taken the first step to continue the discussion on the Papers which were presented at the joint Gas Conference in Birmingham recently.

The Altered Ways of To-day.

It is stated that we cannot say that the problem of the domestic load has been solved in any district until we are satisfied that terms are available which can meet the pocket of every potential user of gas in that district, allowing them the fullest service which gas can give. This may suggest that it is necessary to have tariffs; but it suggests, too, that we ought in our discussions and deliberations to consider what the consumer can afford to pay for gas and for gas appliances. It is very easy to say "Design a tariff and give the consumer gas at half price." If you gave every consumer gas at half price after he had paid the standing charge, I am not at all sure that he would not be broke; after all, there is a standard minimum price which the gas undertaking must receive if it is not to go under, and it may be that some of the tariffs which some of us have designed would not be applicable if advantage were taken of them by people other than those whom they just suit for the moment. So that I do think we ought to look at the other aspect and consider the other inducements to consumers to part with money which otherwise they might be putting into the gas meter. So many other things nowadays, admirable in their way, are all taking money which otherwise we might be receiving for some of the services we are ready to render. I do not quite know how we can get it across. Perhaps the Women's Gas Association can help us. We might consider what type of advertising would be suitable. But I am quite sure we are on the wrong tack if we assume that the only competition we have to meet is that of electricity and solid fuel. There is far more than that. It seems that the home nowadays has lost the importance it used to have. There was a time when people were house proud and when comfort in the home was almost the main feature of their lives. But all that has gone, and the idea to-day seems to be to get out of the house as quickly as possible and to spend money somewhere else. How we are to persuade consumers to stay at home and to make their homes as comfortable as possible is one of the things we have to consider for the future, and that is an aspect of the retention and development of the domestic load of which we ought not to lose sight in future discussions.

Discussion on Paper by Mr. J. P. G. Dowman

Mr. PERCY E. BROWNE (General Manager, Brighton, Hove, and Worthing Gas Company): The Gas Industry has had in mind the problem of sales development in increasing measure during the last five or six years, in which we have been faced with more virile and sometimes virulent competition from our friends in the electrical industry. Mr. Dowman is correct when he says that before we proceed to sales development we must have information at hand as to our potential markets.

I am convinced that we have now to offer to our consumers some optional systems by which to purchase gas. The price appears to be high when quoted per therm, in comparison with the selling price of the electrical Board of Trade unit; and it is an extraordinary feature that the electricians have been able to get away with the idea that they are out to sell electricity at a halfpenny per unit. It is psychological; that very small figure appeals to the great public, and I feel that we must have an answer in the Gas Industry somewhere along those lines.

A Preliminary to a Tariff.

To enable us to crystallize our ideas in the Brighton Undertaking on this matter, we have been considering the offering of an optional tariff to our consumers for about five years, and the decision to offer our present tariff was not reached without the burning of a good deal of midnight oil. We must be very careful how we construct our tariffs. A great many factors have to be brought into review, and I am going to say at once that our President considers the Brighton tariff to be a good one—as he himself said yesterday. Mr. Hyde Burton, who is a Director of the Brighton Company now, and who was the Secretary at the time we were considering these things together, can deal with the tariff far more ably than I can. I will merely say that as a preliminary to the offering of that tariff—and a necessary preliminary to the offer of any tariff—we have had to build up in the Brighton Company a record system such as Mr. Dowman has referred to. We initiated a census card system in 1936, having at that time just completed two amalgamations—one with Worthing and the other with Littlehampton, and having straightened out the organization as one whole. We concentrated on making a census of the whole of the gas-consuming appliances owned by the Company or hire-purchased by consumers or bought for cash, as a preliminary to surveying our market, and in order that we might build our sales campaigns on selective systems and thus avoid wastage of labour and salesmen's time—because we who are conducting undertakings in the various areas must be almost alarmed by the increasing costs of gas selling. We used to say that manufacturing costs represented the most important feature in our revenue accounts. To-day, if we are not very careful, our distribution costs are going to put a preponderating charge on our undertakings.

Mr. JAMES CARR (Stretford): I wonder how many of us have market information, and what use we make of it when we have got it. One often hears of an undertaking having completed an accurate and careful census of all consumers' appliances, and yet we find that the sales following such a census do not show any marked increase. It is generally accepted that a system of sales development and control must embody a census of gas appliances. It is agreed that that information visibly signalled will give a sales controller a mass reflection of sales opportunities and consequently an indication of possible mass action. I believe that a census is a necessary part of a sales system, but not the main part. While it gives an indication to a salesman, it does not help him materially in his association with the consumer. The real basis of sales control and development is, I contend, a visible record of every bit of service given by the undertaking—from "meters" to "appliances." It is the capitalization of this service by the salesman that promotes the goodwill and interest of the consumer from the angle of *all* appliances. Supported by intelligent propaganda, it will bring about the greatest sales result that is economically possible.

At Stretford we have during the last two years evolved and installed a system which gives practical expression to the principles I have mentioned. It is increasing sales (there has been an increase of 23% in one district where a twelve months' comparison is possible), capitalizing our service and, what is more important, creating a foundation of sales possibilities for the future. Such a system is, I believe, the only means of combating competition successfully. We should be just as particular and accurate in recording the service we render to the consumer as we are in recording the number of his appliances. Increased sales cannot be secured when our service is poor. Consumers' complaints are the first things I attend to on reaching my office in the mornings.

Specialized Representation.

By means of a census we are able to decide, as Mr. Dowman has said, how few appliances we have installed in the premises of a certain number of consumers: and to illustrate the service in-

formation which I try to collect I should like to refer to doctors and dentists in our own area. Some five years ago, gas fires were being ordered out by doctors from the premises of consumers at the rate of one per day, and it was decided to appoint a man to represent the Undertaking to all professional men throughout the area. He was given an entirely free hand, the only condition insisted upon throughout being that no financial consideration should be given in the supply of appliances, and that all appliances supplied had to be sold at list prices and on terms applicable to all consumers.

Twelve months elapsed before any material change occurred, but by the end of that time the return of gas appliances due to their being ordered out by doctors showed a decline, and considerable orders were being obtained for gas-heating appliances, particularly in consulting and waiting rooms. The success of that specialized representation is indicated by figures. Of 48 doctors, 41 have gas cookers. Between them they have 188 fires, 19 water heaters, 34 wash boilers, 13 refrigerators, 12 radiators, 4 hotplates, 3 coke grates, 7 boiling burners, and 2 central heating units. On the premises of 29 dentists there are 25 cookers, 91 fires, 23 water heaters, 12 wash boilers, 3 refrigerators, 4 sterilizers, 43 vulcanizers, 8 radiators, 1 hotplate, 1 coke grate, 13 boiling burners, and 1 central heating unit. Included among the sundry appliances which make up the total there are bunsen burners, gas pokers, towel rails, grillers, a gas kettle, and a tropical fish aquarium.

The real success of these operations is shown by the fact that during the last two years not one gas fire has been removed from consumers' premises on doctors' instructions; and the confidence we have won was illustrated recently by an order we received from a doctor who is building a new house, to which he is taking all the gas appliances he now uses, while a further 12 gas fires and sundry other appliances are to be installed.

Census cards do not carry us all the way unless they show the service we have previously rendered to a consumer. Each of our salesmen at Stretford has 2,000 consumers; he has to attend to all their wants so far as gas appliances are concerned, and they get to know him, so that we are able to maintain the personal element instead of sending different men to visit any one consumer from time to time.

Mr. HYDE C. BURTON, F.C.A. (a Director of the Brighton, Hove, and Worthing Gas Company): I should like to emphasize some of the points that Mr. Dowman has made and to relate them to one or two matters which may be of general interest in connexion with the Brighton Undertaking.

In the first place, the Author of the Paper deals very thoroughly with the whole aspect of market research, and as I see it, it has really to be divided into two categories, which I will call positive and negative market research; I feel that it is just as important, if not more important, to know what our consumers have not got as to know what they have got. In other words, it is very important that we should classify our results when we take any form of census in order to ascertain the reasons why consumers have not got certain appliances and whether they would use more appliances if different considerations were placed before them. The world to-day, I suppose, is more or less divided into two categories, the "haves" and the "have nots," as we know to our cost, and it seems to me that our business is also influenced by that fact, that we are primarily concerned with the "haves" and "have nots" on our districts.

I should like to make a few remarks on hire-purchase in connexion with market research, because I feel that, after something like eight or nine years of fairly intensive selling, there must have come a time when there is not quite the same field for the sale of further appliances as there was formerly. For instance, if we consider the Brighton Company and carry our minds back over a period of 13 years, we find that the outstanding hire-purchase balances then amounted to £10,000, whereas at Dec. 31, 1938, they amounted to £230,000. That means, of course, that a very large field has been covered in the sales of appliances. There may come a time, it seems to me, when our selling will need to be a little more specialized; whereas we have covered the ground fairly thoroughly in the first instance, all market research and general census schemes now will enable us to concentrate on people who have not got what we think they ought to have, rather than to waste a lot of time and possibly money and literature on people who have already fulfilled our requirements. For example, in the matter of cookers, we know that we have 15,000 consumers who have hire-purchase contracts. It is of no use sending literature to those consumers to ask them to buy cookers; and I think that, with a certain definite contraction of purchasing power, it is probable that until those hire-purchase contracts are run off it will not be of much value to offer them further appliances, because we do not want the consumer to expend all his purchasing power on appliances and to have nothing left at all with which to make use of them. I express that opinion with deference, because no doubt other people will hold a different opinion.

Question of Expense.

The Author of the Paper has stressed the need for presenting to the undertaking a continuous picture; and on the negative side I think we have got to ascertain very thoroughly the reasons why consumers do not use gas for water heating, for instance. What is the reason? Do they find that the use of gas for that purpose is too expensive? Have they ever considered using gas? If so, would they put in a water heater if we reduced the price? And so on. It is part of the market research campaign to try to get the consumer to tell you his reactions to your suggestions when you put them before him.

Another aspect of sales development which was brought to my mind by Mr. Browne's remark concerning cost—I cannot call it market information, and it is not strictly sales development—is the necessity of research into our internal organization, in order to make quite sure that we are getting the full benefit out of the money and time and labour spent on these schemes, because there are many factors which assist in running up the costs if census schemes and matters of that sort are not carefully scrutinized from time to time. For example, we might watch such matters as wasted visits by canvassers, or the time spent in travelling, which in a territory such as that of the Brighton Company, covering 100 square miles, is very considerable and presents a problem which managements must consider. Another matter is that of getting the men out on the district, whether we should utilize outside transport to some extent. While such matters are not strictly market research or sales development, they are concerned with it, because they represent part of the cost of the promotion of your business.

Reference has been made to the tariff which the Brighton Company has recently offered to its consumers. We started it in February of this year, and to date some 2,300 consumers have applied for it. That is satisfactory in a measure, I think, because the tariff is a new departure here. But again, we wish to ascertain why some people who were interested in it and who asked for information have refused it; that is just as important as, if not more important than, a knowledge of those who have accepted it.

We adopted a scheme with regard to cookers. We had at one time rather a lot of black cookers on the district, on simple hire, and we felt that simple hire offered nothing like the same security of tenure as did hire-purchase. Therefore, when I was Secretary of the Company, Mr. Browne and myself and some of the other officials went into this question very carefully, and recommended to the Board that we should endeavour to replace all those black cookers by up-to-date enamelled cookers on seven years' hire-purchase terms. That scheme was started on Dec. 9 last. We had a complete knowledge of the people on the district who had the black cookers on simple hire, and therefore we were able to start straight away on what we called our specialized cooker replacement campaign. Already we have effected some 2,000 replacements since the campaign was started, and I think that is not unsatisfactory, because, while possibly it is not a load-building part of our business, we do feel that it is retentional, and in that direction, of course, market research is just as important in its final aspects.

Appeal of Monthly Accounts.

We were told yesterday by Mr. Bateman, of Harrogate, that his tariff was based on annual consumption. Our tariff in the Brighton Company's area, however, is based on maximum monthly demand. We render accounts monthly, and there is not the slightest doubt that that method of accounting makes considerable appeal to the consumer, especially in the matter of the purchase of appliances, because, while a consumer might find it a little difficult to pay 15s. per quarter regularly, he finds it less difficult to pay 5s. per month. Therefore, we put forward a tariff comprising a small monthly standing charge *plus* gas at half price. We arrived at the maximum monthly demand by reference to the consumer's consumption of gas during the last twelve months, and if the maximum month's consumption was, say, 10 therms, we told him the standing charge would be 3s. per month, and that for the next 18 months he could have as much gas as he liked at half price. If his maximum monthly demand was 20 therms, then his standing charge was, say, 5s. 6d. Those figures may not be absolutely correct, but they are somewhere near the mark.

The object of the tariff is primarily to induce consumers to use more gas and to afford them facilities for really finding out what gas can do for them. In another Company with which I was connected we had a market research made of all our consumptions, and we found that something like 18% were under 10,000 cu.ft. per annum, equivalent to 50 therms per annum. That is a very low consumption, and obviously affords a big field for potential increase. But if a consumer's gas bill in total is £2 per annum, it seemed to us in Brighton, it is not of the slightest use offering him a two-part tariff under which he would have to pay a standing charge of, say, £2 10s. per annum in order to obtain his gas at half price. Therefore, we decided that we must take the risk and hope that if we offered a consumer a two-part tariff in-

corporating a standing charge based on his maximum demand, to run for 18 months, he could find out for himself, by reason of the fact that he could obtain gas at half price, how much gas could do for him. It seemed to the Company that, once the consumer had found out what gas could do for him, he would be ready to put his acquired knowledge to good effect, both for himself and for us, in the future.

One other aspect of the tariff, of course, is that it is an extremely good weapon for the salesman, in our view. If a salesman can go to a consumer with information ready to hand, supplied possibly by the rental department, as to what that consumer's maximum monthly demand is, and therefore what category of tariff applies to him, that salesman can tell him that he can buy gas at half price if he will pay a charge of 3s. per month, or whatever the figure is, for 18 months; and if the consumer installs a water heater or a gas fire he can be absolutely certain that all the rest of the gas he consumes will be sold to him at half price. We do feel that that is a great inducement.

Perhaps I had better forestall a question which you may be wishing to ask. You may want to know what we propose to do at the end of a contract period, when a consumer has taken advantage of the new tariff and has bumped up his consumption so that his maximum monthly demand has increased considerably. Well, we take particular care to state in our contract that it is a special contract for 18 months, and that the consumer must realize that after that period we are prepared to offer him gas for a further 18 months at half price, his standing charge being then fixed on the basis of the maximum monthly consumption during the first 18 months of his contract. Although that might seem to be difficult to put into effect, I do not think it is really, because all the consumers who accept the tariff will not suddenly increase their gas consumption by 20, 30, or 40%; the increases are likely to be in the region of 10, 15, and 20%, according to experience elsewhere, and those are increases of total consumption, not of maximum demand. Therefore, we do not feel very unhappy about putting the matter to the consumer, because we can always say that we explained it clearly when we made the first contract; and if he does not like it he is always at liberty to use gas at the ordinary price.

Mapping Out the Loads.

Mr. S. C. LESLIE (Chairman of the Publicity Committee, B.C.G.A.): There are three ways in which gas undertakings can use research for purposes of sales development. The first, of course, is the proper exploitation of the information they have in their own records. I am afraid it is still true of probably all undertakings that less than the fullest possible use of existing information is made, and in a great many undertakings I believe the load figures are not yet available under the different headings. The distinction of the domestic from the commercial and of the commercial from the different sections of the industrial load cannot yet be made in those undertakings. That, of course, is basic. Then a number of other important factors of information can be obtained simply by a proper analysis of the figures on record. The load value of different types of appliances is something that undertakings can ascertain for themselves by carefully watching their own records and performing the appropriate subtraction sums. Another thing is to make a careful analysis of returns of appliances on the district in order to distinguish between those which are useful and those which seem to point to some danger spot which must be watched with increased care.

Then there is a great deal of information of a public or semi-public kind which may be used for market analysis. It is possible for an undertaking to ascertain from records at different times the proportions of those in its market who are enjoying incomes of various levels. That is essential information in promoting a proper sales programme. If one does not know more or less how many households in a district have an income of about £500 a year, clearly one is not very well equipped to frame a sales programme dealing with the more expensive and, in some respects, more important gas appliances.

Lastly, various kinds of information can be obtained by going out into the district and digging for them, finding out from consumers their attitudes and practices under various headings. For instance, how many of the users of coke boilers for water heating keep those boilers in continuously, and how many use the boilers more or less as instantaneous heaters, lighting them each day and allowing them to go out of use during the night. Information of that particular kind is essential if the development of the water heating load is to be effected as we want to see it effected.

I would like to add that if undertakings would like any kind of technical advice about market research and the costs of making certain kinds of investigations and will approach the B.C.G.A., they will find that it is ready to give that advice.

Evaluating Motives.

Mr. F. C. MITCHELL (London Press Exchange): This morning the discussion has followed largely along the lines of the census or the recording of information at the disposal of the undertakings. I should like to add a few words with regard to the other side of market research—*i.e.*, the psychological side, concerned with the ascertaining and evaluating of motives, impulses, and habits. I think that is enormously important to any body concerned with public habits, as you are. The Gas Industry is faced with very strong public mis-information on the subject of electricity. Speakers have referred to the psychological weight which is attached to the halfpenny unit, and so on. All that leads you back to the importance of trying to ascertain not merely what your consumers have in the way of appliances, not merely what they do with those appliances, but the underlying reasons and the opinions they hold with regard to your service and with regard to the relative value of gas. That is something which I believe can be carried out by properly planned research, with immense value to your Industry.

Mr. DOWMAN, replying to the discussion, said: There remains very little for me to do except to thank you for your kindly references to the Paper. I feel that the whole subject of statistics is rather misunderstood in this country, and perhaps we do not fully recognize how statistical methods can be used to advantage and in a really practical way. My Paper has a distinctly statistical flavour.

One point I should like to make is that a great deal of the information that is seen in this country is on a annual basis. Annual figures usually give you information that is retrospective to your activities. What I think is needed much more is statistical information on the monthly, weekly, or as I have said in the Paper, on the daily basis. Daily and weekly information will help you to keep in direct touch with what is happening.

The PRESIDENT proposed a vote of thanks to Mr. Dowman for his Paper, and Mr. J. MITCHELL (Leicester) seconded.

Discussion on Paper by Lord Horder

Dr. DUNCAN FORBES (Medical Officer of Health, Brighton): It is interesting to note the different views on house heating of the Englishman and the American. The first prefers an indoor temperature of 60° to 65° while the latter prefers a temperature of 70° or over and finds our houses cold and uncomfortable. The preference is due to differences in climate, the Englishman being accustomed to a moist atmosphere and more equable temperatures while the American experiences continental conditions with extremes of heat and cold and provides for the latter and gets into the bad habit of overheating his house continuously. Personally, I think the Englishman's choice of temperature the better and that he is the healthier for it.

Lord Horder has put it down to your credit that by a "rationalized fuel system," you liberate a few shillings a week which would otherwise be spent in cleaning and in storing fuel. I do not dispute for a moment that gas is far more convenient than coal, that is a work saver and is dustless; in fact, "clean" heat is an excellent description, but does the use of gas liberate a few shillings a week? Can the working man's wife transform convenience and a little work into shillings? I know of thousands of houses of the non-parlour type in which the common living room and kitchen is heated by a kitchener which cooks the food, provides a cheerful fire, and at times heats the water for hot baths. Can all these amenities be provided by the clean heat of gas or electricity at a few shillings *less* per week? I do not think so, but it is for you to correct me if I am wrong. Again, if we have illness and a fire has to be kept burning in a bedroom can one do it more cheaply by the coal fire or with gas? Again it is for you to say.

The heating of schools and factories has had much attention in the past and now it is the rule that the temperature of the factory must reach 60° F. within an hour of the assembly of the workers. All kinds of heating have been tried out in schools, and personally I am not satisfied that we have yet arrived at the ideal system. Certainly low-pressure hot water radiators give very comfortable heating, the gas companies I believe advise the use of gas to heat the boilers of the hot water systems, but most architects advise the use of coke as they believe that it provides the cheaper service, partly because no additional pay accrues to the caretaker who acts as stoker. In both cases the gas companies supply the heating agent.

More recently special attention has been given to the heating

of shops, the Health Department having been assigned the duty of seeing that the workers are kept comfortably warm. Our first problem was how to deal with meat and fish shops many of which had open fronts. As low temperatures are in any case advisable we are trying out the effects of radiant heat emitted from a heated tube under the counter; the radiant heat warms the legs and feet of the employees. This method is proving a success.

In closed shops in which there are no perishable goods, the problem is quite different, and the choice of temperature depends on whether the workers are sedentary, when we aim at a minimum of 65° F., do light work, when 60° F. may suffice, or do heavy work, when the temperature may be allowed to drop under 60° F., but certainly not below 55° F. I may say that in all cases we prefer radiant to convected heat and we direct the former on to the lower part of the body, the legs and feet, rather than on to the head, as we do not want workers to suffer either from "hot heads" or "cold feet." All these matters are receiving consideration from the gas companies, and we have found their suggestions most helpful.

We would be healthier, our laundry bills would be smaller, the cost for repainting would be less, and our Pavilion and St. Peter's Church and other beautiful buildings would suffer less from corrosion if we could abolish every coal fire. The use of gas and electricity has helped us far along the road to a smoke-free atmosphere and I hope that both Mr. Therm and Mr. Ohm will help us still further along that road.

From all points of view cremation is the ideal method for disposal of the dead. Bodies mouldering in the grave do not bear thinking about; surely it is more fitting, as it is certainly more hygenic, that the body should be quickly resolved into the elements of which it is composed. Again, in this matter you can help us with clean heat.

The Question of Cost.

Councillor A. S. GILES: We have had a great outcry about slums and overcrowding; we have public health authorities and we employ smoke inspectors and keep a very careful watch on smoky factory chimneys. I wonder if you have considered how much of the dirt in our atmosphere is really due to the factory chimney and how much to the domestic chimney. We buy vast areas of land and build modern and picturesque small houses for our people to live in, and we provide those people with even more chimneys capable of producing smoke than they had when they were living in less healthy surroundings. Why do we do that? I feel sure that we do it because at present we are unable to sell smokeless and healthy fuel at a price which can compete with that of coal. Of course, the gas producers in the south have to use coal which must be transported over great distances by rail or sea. There are coal mines within my own city boundaries, but unfortunately the coal produced there is quite unsuitable for making gas and we have to bring our gas coal at least 60 miles, and sometimes a great deal further, for the purpose of producing gas. The consequence is that the local coal merchants have the advantage of being able to sell coal which has not to bear the cost of railway transport.

Another difficulty with which we are all faced is the fact that, due to re-housing, our costs of distribution have been greatly increased, for we have had to lay down very extensive and expensive new mains and services. Then, in order to sell our commodity, we have to provide, I think quite rightly, very modern go-ahead sales organizations. But until we can find some means of supplying our fuel to the people in the municipal housing estates at competitive prices, I am afraid we are going to be cursed with this black smoke business.

Some of us have been thinking about other fields than the domestic field for the consumption of gas. We have encouraged the use of gas in large quantities by industrialists; in order to persuade the industrialist to consume gas we have to quote him a special price, and in justifying our special price by saying that in it there is a contribution to help us to meet the additional expense incurred in dealing with the less economic consumers in small households. I think that as an Industry we have got to make up our minds how far we can go in that direction. There is no doubt that gas and coke can give all the satisfaction, both æsthetic and physical, that the old-fashioned coal can give; and as we have heard on many occasions during this Conference, the more we can persuade the people of this country to use our commodity, the more are we providing for the well-being of the community.

Need for Research.

Alderman Sir ALBERT BALL, J.P. (Chairman, Nottingham Gas Committee): The importance of our Industry to the health and happiness of the community has been stressed by Lord Horder. I have been associated with the Gas Industry for many years. I fixed gas fires more than 60 years ago, and I have been Chairman of the Nottingham Gas Committee for over 35 years. So that I have seen many changes both in the methods of production and the methods of distribution, and I think I have seen in different parts of the world every method of production that is in existence to-day. I would urge upon the engineers and managers of big gas undertakings that we want to go in for more research work. We can be of still greater use to the community than we are at the present time. We have not reached the end of our resources, and few people appreciate fully what an important part we can play in the health and happiness and in the defence of our country.

One of the matters in which I am interested is that of the melting of metal. At one time we melted our metal by means of oil furnaces; those furnaces were noisy, and the men who had to operate them used to work stripped to the waist. But to-day we are melting all our metal by gas, the men can work in comfort, wearing their ordinary clothes, and the job is fit for human beings to do simply because they have the benefit of the product for which you gentlemen are responsible.

Often one is disappointed to find in some of our great cities that when gas is found to be a little more expensive than some other fuels for furnaces, the people responsible for those furnaces go back to mechanical stoking and poison the atmosphere. I want you propagandists to try to point out to the community, and especially to the representatives of your city councils, what a great saving can be effected in the decoration and upkeep of buildings if gas is used instead of smoky fuels. It is up to everybody engaged in or responsible for the Gas Industry to use every means at his disposal to encourage chemical research and other methods to gain more knowledge with which to carry forward this wonderful Industry, for it can confer such a blessing upon the community, apart from the profit side.

Vote of Thanks.

The PRESIDENT proposed, and Alderman E. GRIMSLEY seconded, a vote of thanks to Lord Horder.

Lord HORDER: I agree that it is good to work in order to be warm; but I also agree that it is good to be warm to work. I know some people who never begin to work until they are warm. Marshal Foch refused to work until he was warm. He did an enormous amount of work in what we should regard as an overheated room, and it was good work. But we must also have ventilation, and, like my friend Mr. Duncan Forbes, of course, I think the flueless house is the most unhygienic habitation that man has yet devised. Again, we must have a clean end product. It is all very well to say that at this present juncture you have not perhaps succeeded in liberating as many shillings as I suggested optimistically that you might be liberating for the purchase of food and other essentials of life, but there is no reason why you should not do that in the future, if not now, by your particular form of providing warmth.

LOCOMOTIVES

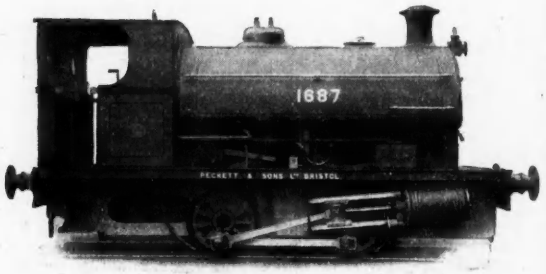
LOCOMOTIVES of all Sizes and Gauges specially constructed for Main and Branch Lines, Contractors, Docks, Gas-Works, Collieries, Iron-Works, Brick and Cement Works, &c. Locomotives of various Sizes always in progress for early delivery.

Photographs, Specifications, and Prices on Application.

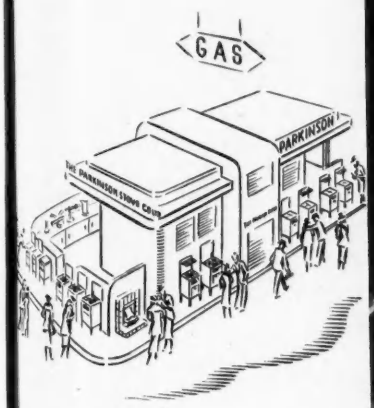
PECKETT & SONS, Atlas Locomotive Works, LTD., BRISTOL.

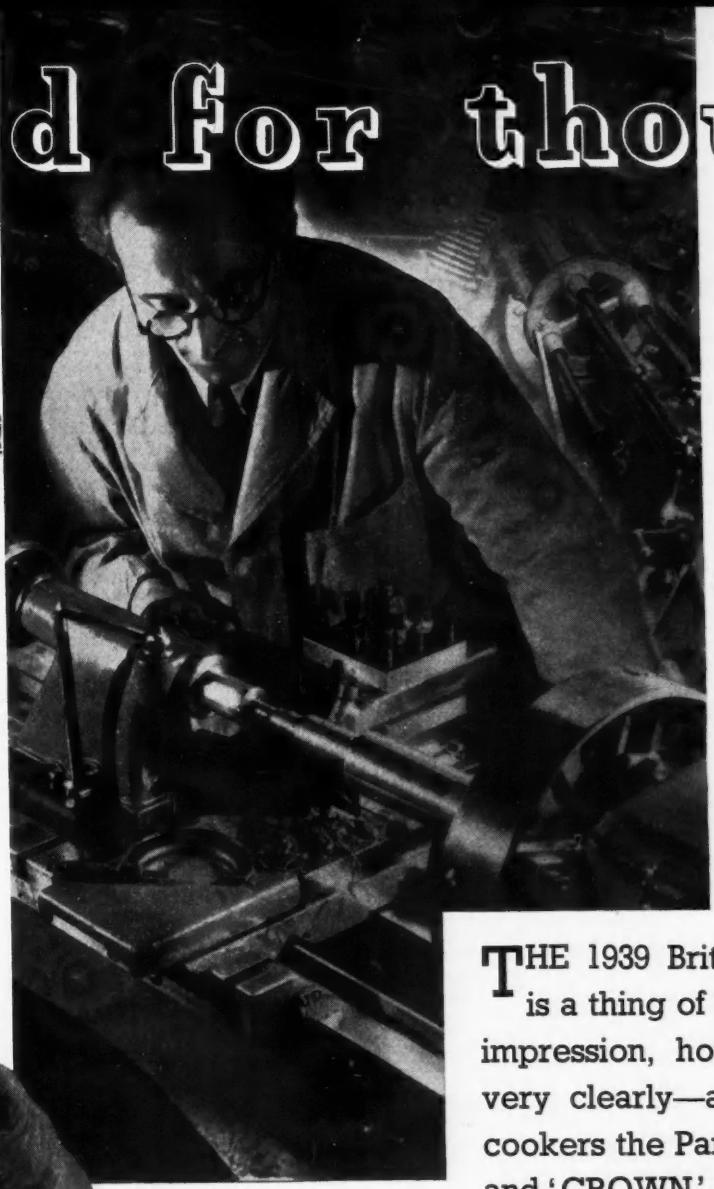
Telegraphic Address: "PECKETT BRISTOL."

London Representatives: FERGUSON & PALMER, 8, Victoria St., Westminster, S.W.1



Food for thought





THE 1939 British Industries Fair is a thing of the past. A lasting impression, however, stands out very clearly—among modern gas cookers the Parkinson 'RENOWN' and 'CROWN' are supreme. Pride of craftsmanship has produced this sound construction, combined with beauty in appearance and perfect cooking performance.

PARKINSON

B.C.G.A.

The Conference Banquet

On the evening of Monday, April 24, the delegates were entertained at Dinner by the Chairman and Directors of the Brighton, Hove, and Worthing Gas Company. Mr. A. M. PADDON presided.

The Loyal Toasts having been honoured,

The PRESIDENT proposed "The County Borough of Brighton." His only qualification, he said, for discharging that pleasing duty was the fact that some 70 odd years ago he was born in the neighbouring borough of Hove. However, his experience had made him cognisant of the admirably consistent way in which the affairs of the great Borough of Brighton had always been conducted.

HIS WORSHIP THE MAYOR OF BRIGHTON (Councillor J. Talbot Nanson, J.P.), responding to the toast, congratulated Mr. Paddon upon the fact that he was President of the B.C.G.A. They were fully aware that he had not sought office for his own personal aggrandisement; he had accepted it for Brighton, and Brighton was intensely grateful to him. In an expression of congratulation upon the magnificent advertising which the Association and the Gas Industry generally carried out, particularly as it was seen in Brighton, he said the Industry had certainly discovered that it paid to advertise—so much so that in Brighton one saw gas advertising on all the lamp standards owned by the electricity undertaking!

Major-General Sir JOHN BROWN (Deputy Director-General of the Territorial Army), proposing "The Gas Industry," referred to the Industry as "a wonderful show," because not only did it produce gas, but with the aid of its scientists and their research it was able to produce a marvellous array of by-products of value to the country. The fact that the conference had been postponed from last autumn, owing to the international crisis which had arisen at that time, led Sir John to refer to the troublesome times in which we live and the importance of the national service rendered by the Gas Industry. The Gas Industry played a great part in preparing for the material needs of national defences; and it could play a great part on the man-power side as well. The desire of all concerned with the Industry was to be able to conduct their business in peaceful security, to get on with the job that was nearest to their hand. But they would not be able to do that unless the defences of the nation were secure in every item. Coupling with the toast the name of Sir David Milne-Watson, Sir John said that Sir David and the business with which he was associated had thrown their efforts whole-heartedly into Territorial work; the 12th Rangers was a very fine Territorial battalion sponsored by Sir David.

Sir DAVID MILNE-WATSON, responding to the toast, assured Sir John Brown that there was nothing dearer to the hearts of the assembled company than the cause for which he had pleaded so eloquently. All in the Gas Industry had rendered and were prepared to render in the future every service in their power to make their Industry efficient in the hour of need. He believed they had served the country well in times of peace, and they were prepared to do their utmost if war should come upon them. As had been pointed out, there was a very large range of materials which they could produce, which they were producing and would produce in even greater quantities if required. It had always been the duty of public utilities to show the way in public service, not only in the ordinary course of making and selling gas and the by-products of coal, but also in difficult times such as the present, by doing their utmost to encourage recruiting and to ensure the efficiency of the country so far as man power was concerned. He was pleased to be able to say that the strength of the Rangers had been practically doubled within the last two days; the second battalion was practically complete, and as Hon. Colonel of the regiment that fact afforded him a great deal of pride.

Sir David added that he did not propose to say very much with regard to the Gas Industry, because there were so many present who knew as much about it as he did, and probably a great deal more—at least, sometimes he thought they did, from what he was told! But the Industry could proudly claim to be not only a very old but a very progressive Industry. It had fought for a long time to establish itself in the country, and now it was fighting to keep its place, not merely from self-interest, but because it was absolutely essential to the welfare of the country. All in the Industry were facing their responsibilities as they had always done, and he assured Sir John that they intended to give him all the support they could in the efforts to make the country ready to face any emergency, with regard to both men and materials.

There were other matters, he added, which made life exciting at the moment. About a fortnight hence there was to be a great inquiry by a number of Peers into the work of the holding companies, a subject which he had no doubt would give rise to a great deal of interest in the Gas Industry generally. Then, within the last day or two there had been a most interesting venture by a body of people calling themselves "PEP"; they had given a great deal of advice as to how the Industry should be conducted in the future!

With the example of the coal industry, which was supposed to be organized by the Government, he did not know that it would have very much better success with the Gas Industry, and he personally felt that those in the Industry were quite able to look after their own affairs, and he hoped they would long continue to do so. He did not for a moment claim that the Industry was perfect, but those responsible for it had done a job of work very well; they were always open to new suggestions and new ideas, from wherever they came, and they were trying to progress, and he still believed they ought to work out their own salvation. He had faith in the future of the Industry, faith that it would for long continue to be a great servant to the public.

The Rt. Hon. Lord CAUTLEY, K.C. (Director, Brighton, Hove, and Worthing Gas Company), proposing "The Guests," extended to all present a very warm welcome and appreciation of their attendance at the Conference. He rejoiced to see, among those present, so many leaders of the Industry, men who had led it with such great success that it was placed in a position of absolute security, so that they cared not from what side competition might come. That was no idle boast, because as something of a scientist himself he was satisfied that the Industry depended upon scientific research for improving its processes and methods of manufacture. The Industry was fortifying itself with the means of making use of further discoveries.

Colonel RALPH CLARKE (Member for East Grinstead Division of Sussex) responded to the toast. In a tribute to the Chairman of the Company, he said it must be very gratifying to be able to look back, as could Mr. Paddon, upon the many years of service he had given to the Gas Industry, and particularly upon the years of progress and prosperity during which he had led the great Company whose hospitality the guests were enjoying. There were many who would like to possess his youthful energy and his light-hearted enthusiasm.

Commenting upon the antiquity of the Gas Industry and the Brighton Company, he recalled that in 1818 the Prince Regent had given an order to what was then called the Brighton Gas Light and Coke Company to have gas lighting installed in his Palace, in part of which the conference was held.

He believed there was no industry in which those modern ideas were exemplified in a more outstanding way than the Gas Industry, and they were nowhere better exemplified than by the Company which was the host at the conference. At the present time the country looked to every individual and every industry to make their contribution to national defence, and there was no industry which through its by-products, through its efforts to man the Territorial Army and in other ways, had done more for national defence than the Gas Industry.

Following the Banquet, the delegates rejoined their ladies, who had attended a Conversatione in the Royal Pavilion at the invitation of the Brighton and Hove Branch of the Women's Gas Council, and were received by Mrs. Clowes, M.B.E. There was dancing in the Royal Pavilion until midnight.

Official Luncheon on April 24

The delegates and their ladies were entertained at Luncheon on April 24 in the Corn Exchange, adjoining the Dome. The President was in the Chair.

The gathering was happy and informal, and after the Loyal Toast had been honoured, the only remaining toast was that of the ladies, which was proposed by the President.

Miss ETHEL WILLANS, M.B.E. (Principal of the Home Service Section, Gas Light and Coke Company), responded to the toast, and expressed thanks on behalf of the ladies for the generous hospitality extended to them. In thanking the Gas Industry for all it had done for women, Miss Willans commented that it had improved gas appliances and had made them so beautiful that one almost wanted to have in the drawing room appliances which would not be ordinarily there; even the gas cooker had gone in for slimming, and other appliances showed a tendency in the same direction. The colours of the appliances were such that the users felt a desire to have their kitchens re-decorated not merely once a year but twice a year in order to contrast with or match the colours of the appliances.

Miss Willans also took the opportunity to thank the President and his colleagues for the delightful entertainment they had provided for all attending the Conference.

Luncheon on April 25

The last official function in connexion with the Conference was the luncheon, for the delegates and their ladies, in the Corn Exchange on Tuesday, April 25. Mr. Paddon again presided.

Sir RUSSELL BENCRAFT (Past President of the Association, and Chairman of the Southampton Gaslight and Coke Company) proposed the health of the President. The name of Paddon was honoured in the Gas Industry, not only in the South of England, but throughout the country and in places abroad. Mr. Paddon's father was for many years Chairman of the very successful Brighton Gas Company, and for 40 years was Consulting Engineer to the Southampton Company. Mr. Paddon himself, in addition to being Chairman of the Brighton Company, was also Deputy-Chairman to his colleague, Mr. Frank Jones, in the South Metropolitan Gas Company. Sir Russell offered, amid applause, the heartiest congratulations to Mr. Paddon, Mr. Frank Jones, and their co-Directors, and to Mr. P. E. Browne (the General Manager of the Brighton Company) on the very wonderful Conference they had arranged.

The PRESIDENT, in his response, expressed his gratitude to Sir Russell Bencraft for the kindly reference that had been made to his father.

Mr. H. D. MADDEN (Chairman of the Executive, B.C.G.A.) proposed the health of Mr. P. E. Browne (General Manager of the Brighton Company), who had done so much to make the Conference the greatest success in the history of the B.C.G.A. The success which had attended the Conference, said Mr. Madden, had been fully expected. The names of the members of the Board of the Company were household words in the Gas Industry. Many of the arrangements had been made by Mr. Browne, who came from a thoroughly good gas stock. Mr. Madden recalled that he had known Mr. Browne's father, who had been with the South Metropolitan Gas Company and many years ago was the "big noise" as the examiner in gas engineering. Mr. Bernard Browne, a brother of Mr. P. E. Browne, had carried out some very successful work in Brazil, and some of Mr. Madden's assistants were serving under him there.

Mr. P. E. BROWNE expressed gratitude for the thanks which had been conveyed, and accepted those thanks on behalf of all concerned, for he was anxious to point out that he was but the figure-head of a large body of workers and he himself was very much indebted to them. He expressed his personal indebtedness to His Worship the Mayor of Brighton, who had been very kind throughout and had spared no effort in his personal capacity to ensure the success of the Conference. Further, in his civic capacity, as Mayor of Brighton, he had ensured that success doubly by giving the Conference the free use of the beautiful suite of apartments in which the meetings had been held.

Mr. Browne also expressed his gratitude to the officers of the B.C.G.A. and his thanks to Mr. Paddon and his Company and the Directors of the Company, who had been most encouraging through the making of the arrangements, and during the Conference itself.

Gas-Fired Heating Plants and Installations in Bradford

A report of the discussion on a Paper by R. H. Anderson (Bradford) to the Yorkshire Junior Gas Association, which was published in last week's "JOURNAL."

The **President** (Mr. Wylie) said that central heating by gas was a subject of great importance; it was one of the newer outlets for gas. It had come to the front very much in recent years and its possibilities were great. In the Paper the subject had been treated from practical experience in various types of installations at Bradford, and the facts and experiences detailed must prove helpful to all who had to engage in that kind of work.

Mr. G. E. Currier (Bradford Gas Engineer and General Manager) said the Author had succeeded in striking new ground in the way he had treated his subject and the detailed manner in which he had classified and reviewed its various aspects. He had, for instance, gone into some detail on the matter of heating circuits. "We may be inclined" (said Mr. Currier) "to think heating circuits are hardly within our job as gas engineers—that they are the job of somebody else. Yet I suggest that if the representative of the gas undertaking is in a position to discuss heating circuits with the customer and, if necessary, to offer some helpful advice, he is in a much stronger position for getting the business with which he is primarily concerned. I feel the information given in Mr. Anderson's Paper should be of some practical use to people in the Gas Industry in dealing with heating circuits in central heating installations. Mr. Anderson at the outset said his Paper was not going to discuss any matter relating to prices of gas. I think it should be realized that the question of prices of gas in any undertaking is purely a domestic one, a matter controlled by local conditions and circumstances, and is not a subject for general discussion. We in Bradford have had to face difficulties of many sorts in this matter of gas-fired central heating, but our Industrial Gas Section has managed to surmount most of them. We are not out to trespass on the rights of the heating engineer, but I do feel we of the Gas Industry should put ourselves into a position to give advice on circuits, if only to satisfy ourselves that the service which is essentially our own business shall not be jeopardized by anything else so far as lies in our power to prevent it. Making ourselves familiar with heating circuits does not involve trespass at all. The co-operation of Heating and Ventilating Engineers must be encouraged, but that is no reason why we should not put ourselves in a position to advise on the circuits, &c., of a central heating installation. The Gas Industry is willing and anxious to work in conjunction with heating engineers, and the installation of central heating systems is essentially the business of the heating engineers."

Mr. J. W. Holroyd (Rotherham) felt that Mr. Anderson was anxious to have low pilot consumption. There must be some reason in his mind for this, and he would be glad to know it, because he was puzzled by the Author's reference to a conversion boiler which on test showed a rating of 364,000 B.Th.U. but a maximum gas consumption of only 1,000 cu.ft. per hour, and he spoke of another boiler of 379,000 B.Th.U. with only 950 cu.ft. maximum gas per hour. It was rather difficult sometimes to attain the maximum output with some of these converted boilers. That consumption seemed a little low for boilers of that size—unless, of course, there was some special circumstance. He (the speaker) had a pet aversion to baffles on converted boilers. Had Mr. Anderson had to limit his consumption somewhat for some special reason or limit his output in putting in the baffles?

Mr. F. Beaumont (Huddersfield) raised a question as to whether Bradford had considered the point as to competing with itself in its policy in relation to coke-fired boiler installations and gas-fired installations.

Mr. E. Bailey (Cleckheaton) noticed from the Paper and its diagrams that Mr. Anderson appeared to keep definitely to the one-pipe or the two-pipe system of circulation. He did not mix the two methods at all. Had Mr. Anderson had any experience of being in the position of having to utilize both systems in the same building and on the same boiler installation, and if so, had he found it successful? Mr. Anderson said (remarked Mr. Bailey) that in every case a boiler should be at least 30% above heating surface, and this also with a good margin above normal requirements. Bradford were to be congratulated on having overcome condensation, a matter of considerable difficulty with many. In regard to Mr. Currier's observations about studying the circuit but leaving the installation of it to the heating engineer or plumber, Mr. Bailey said he was not sure he agreed that when installing a gas-fired system the gas men should be content to give advice on the circuit and let somebody else do the work. He realized, of course, that they were up against the difficulty of maintaining good relationships with engineers and plumbers, but it seemed to him to be up to the gas people to carry out all the work they possibly could and see to it that the job was absolutely efficient and effective.

Mr. Halliwell (Keighley) asked whether Mr. Anderson could give any more detailed information as to his scheme of maintenance and the frequency of cleaning the gas-fired central heating installations.

Mr. Currier asked the Chairman's permission to interpose in order to answer one or two points, although he did not wish to trespass on Mr. Anderson's reply to the discussion. In regard to Mr. Beaumont's query as to coke-fired and gas-fired installations competing with each other, Mr. Currier said that he regarded coke as being complementary to gas, and it was putting it the

wrong way to suggest that one competed with the other. It was entirely a question of suitability and circumstance. There were circumstances in which it was desirable to install coke-firing, but it must be remembered that in coke they had to operate in a competitive market. Gas-fired plant should be installed wherever possible, but they should not lose a job merely because coke was preferred, or was perhaps more fitting to the particular circumstances. In reply to Mr. Bailey's remarks on the relations with plumbers and heating engineers, Mr. Currier said that whereas it was the usual practice for the gas undertaking to carry out the installation of ordinary domestic appliances they must remember that the installation of a large central heating plant was a very different proposition, and as an Industry they had no desire to encroach on the preserves of the heating engineers.

Mr. A. W. Reid (Leeds) said he had been much interested to note from the Paper the great possibilities of conversions, in spite of all the improvements and allurements of new gas-fired boiler systems.

Mr. A. E. Knowles (Rotherham) asked whether Mr. Anderson had had any experience of successful flame failure cut-outs.

Mr. T. H. Atkinson (Brighouse) asked whether the efficiency of 70% on flue tests in a conversion boiler was immediately after the start of running or some time after.

The **President** noted that Mr. Anderson quoted a certain type of burner and said he would be interested to know whether he had experience of the radiant burner as against the particular type he advocated. In regard to the 30% margin, Mr. Wylie said he presumed it might be necessary sometimes to go beyond that in special circumstances.

The Author's Reply.

Mr. Anderson, replying, said in regard to Mr. Holroyd's point about low pilot consumption that in many cases they had to deal with heating plants which only worked, say, 10 hours in the day, and if there was a large quantity of gas going through during the rest of the day it was going to make heavy gas bills and react against the gas service. On the question of boiler output, actually on the efficiencies mentioned in the Paper, not only did 1,000 cu.ft. of maximum gas consumption serve adequately, but they actually increased the output. Replying to Mr. Beaumont on coke-firing and gas-firing for central heating, that—as Mr. Currier had said—was dependent on circumstances, and in regard to cost was largely a matter of how far the client was willing to recognize the monetary value of heating efficiency. On Mr. Bailey's point as to the use of a combined system, if the system was designed properly and the circuits balanced by the controlling valves there should be no trouble in regard to the 30% margin. This was added to overcome the possibility of a sudden cold period, or a big drop in outside temperature. On Mr. Halliwell's question as to maintenance and cleaning period, Mr. Anderson said at Bradford they had two maintenance men on this work, who made regular visits and did the cleaning if necessary or made a note to do it a few weeks later. To Mr. Reid, on conversion *versus* new gas-fired boilers, Mr. Anderson said in Bradford they had had some not very happy experiences with certain vitreous enamel boilers, which had suffered rather badly in damp positions. As far as concerned the control system, they always stood out for all-gas control if practicable, but there were circumstances and conditions in which one of the other methods was desirable.

To Mr. Knowles, Mr. Anderson said that flame failure thermostats must be very carefully serviced and tested at frequent intervals. Unless this responsibility was faced, the flame failure thermostat was by no means a satisfactory safeguard. To Mr. Atkinson, flue tests on some occasions at the Bradford installations were taken within 12 or 14 hours of the boiler beginning to run, and sometimes within a day or two after. This again depended on local circumstances. Mr. Anderson said that at Bradford they had used the radiant burners on an experimental conversion, but not for central heating conversions up to date. The question of the ideal flue, added Mr. Anderson, was one to which all of them would like the answer.

On the motion of **Mr. A. W. Reid** (Leeds), seconded by **Mr. Haslock** (Scarborough), a hearty vote of thanks was accorded Mr. Anderson for his Paper.

On the motion of **Mr. A. W. Field** (Sheffield), a vote of thanks was expressed to the Bradford Gas Committee and Mr. Currier for facilities for the Paper and for the meeting, and to Mr. G. Griffiths, of the Industrial Gas Section at Bradford, for valuable co-operation in the preparation of the Paper.

After light refreshments, the members made an inspection of the gas-heated central heating installation in the basement of the large Britannia House building (Gas Department headquarters) in which the meeting had been held.

Trade News

Salt Bath Equipment for Light Alloy Treatment.

Solution treatment is a vital and well established process in the manufacture and manipulation of light alloys and a booklet, entitled "Salt Bath Equipment for Light Alloy Treatment," recently published by the Incandescent Heat Company, Ltd., Smethwick, is a comprehensive survey of the Company's activities in that field. The booklet is lavishly illustrated and artistically produced.

Foster Recording Pyrometer.

We have received from the Foster Instrument Company, Ltd., a copy of a new broadsheet. It is a great effort both in size and quality of production. It illustrates the Foster recording pyrometer and dial recorder in actual size in full colours.

The outstanding quality of this broadsheet carries on the traditions of the Foster Instrument Company for quality work. On the inside, which opens out to 21¼ in. deep by 31 in. wide, is a full description with six views of the strip recorder. The merit of this instrument is stated clearly and without exaggeration, and all those interested in accurate heat measurements should obtain a copy of this new broadsheet for reference.

"Halve the Time in the Kitchen."

"Halve the Time in the Kitchen" is the theme of the new season's cooker list recently published by Cannon Iron Foundries, Ltd. An appealing front cover is sure to attract, and one is far from disappointed with the contents. Throughout a high degree of artistic merit has been maintained, a degree to which the new models of the Company readily lend themselves. The first of these to be featured is the "Talbot" K502S—a cooker of entirely new design. The oven is wide and the head of the "Autimo" controller has been recessed into the cooker side, dispensing with any side projection and being easily read from the front. The popularity already achieved by the "Talbot" is due in no small measure to its streamlined and pleasing appearance. Among other new features will be observed the shelf positions which are embossed on enamelled cast-iron linings. The "Henley" is completely streamlined in design, with flush fitting oven door; its high-speed grill is fitted with steel frets which heat to redness within one minute from lighting. A new feature of the "Henley" is the automatic folding plate rack. When the cover is closed the hotplate is completely concealed and protected from dust. A single movement with one hand converts the cover-top into a white enamelled back-plate, the folding plate-rack coming up into position automatically as the cover is raised. Other models referred to in the list include the "New Challenge," which is a high-grade cooker with white tile pattern enamelled exterior sides and door panel; the "Centenary," with high-level oven; and the "Oxford" in mottled enamelled finish.

A New Chevrolet Truck.

General Motors, Ltd., have just added a new model to the Chevrolet truck range. This model will be known as 30-40 cwt., with a wheelbase of 133 in., giving a gross load of 9,500 lb. It has an exceptionally high pay load. The engine is six cylinder, overhead valve, with a cubic capacity of 216·5 cu.in., rated at 29·4 h.p., and developing 78 b.h.p. at 3,200 r.p.m.

The full Chevrolet truck range is now as follows:

113½ in. W.B. 15 cwt. chassis.
123¾ in. W.B. 15-20 cwt. chassis.
133 in. W.B. 30-40 cwt. chassis.
133 in. W.B. 40-60 cwt. short chassis.
158½ in. W.B. 40-60 cwt. long chassis.
133 in. W.B. 60-80 cwt. short chassis.
158½ in W.B. 60-80 cwt. long chassis.

Modern Appliances for Testing Pipelines.

A booklet illustrating and describing modern appliances for testing pipelines has been published by the Lead Wool Company, Ltd., of Snodland, Kent. These include power-driven pumps, hydraulic test pumps, main testing plugs, spigot-end plug, testing flanges and joint testing apparatus for large diameter pipes. Regarding the last of these items it is stated that hitherto it has been practically impossible to test joints of a large main as the work progresses, owing to the enormous quantity of water or air required for each successive test and the considerable difficulty involved in blanking off to sustain the end thrust. The joint testing apparatus consists essentially of three pieces of steel—*i.e.*, one centre drum and two outer angle steel rings with two specially constructed tyres which, when inflated, make a joint between the main and the apparatus. In addition, for high-pressure tests a side plate is provided for each tyre.

Bombay Gas Company, Ltd.

The Annual Ordinary General Meeting of the Bombay Gas Company, Ltd., was held at the London Offices of the Company, Moorgate Station Chambers, on Wednesday, April 26—when the CHAIRMAN, Mr. William Graham Bradshaw, C.B.E., who presided, presented to the shareholders an excellent report.

The SECRETARY (Mr. E. Comber) having read the notice convening the meeting, and the Auditors' reports, the Report and Accounts were taken as read.

The CHAIRMAN, proceeding to move their adoption, said: Before I commence the résumé of the year's working which I am about to give you, there is one matter I should like to mention. You will have observed from the Directors' Report that they have invited Mr. George Evetts to join the Directorate, and that he has accepted their invitation. Mr. Evetts is no stranger to the Company's affairs. So far back as the year 1904, he was helping the late Mr. Henry Edward Jones, who was then advising the Company on technical matters. In addition to his intimate knowledge of the technical part of the Company's business, he has had a wide experience in the Gas Industry, and has long been regarded as one of the foremost Gas Engineers. Furthermore, a few years ago he visited, at the request of the Board, the Company's Works and District, and on his return furnished them with an admirable report, which has been of the greatest service to them in their conduct of the affairs of the Company. We, therefore, welcome Mr. Evetts here to-day, and we feel sure that he will prove, in the future, to be a valuable custodian of the shareholders' interests. Personally, I am sure that this will be the opinion of everybody who knows Mr. Evetts, or who has heard of him.

Continued Increase in Gas Sales.

The political situation in Bombay during the period under review has been a satisfactory one, and apart from one or two isolated instances, the general atmosphere has been quiet. This has enabled those who have had the development of Bombay in hand to proceed with confidence towards their goal. That the Company has shared in any new business which has been offered is shown by the continued increase in the sales of gas, and by the large number of all kinds of gas appliances which have been issued on hire or by sales outright. The expansion in the demand for gas has kept all the Departments extremely busy, and the Mains Department no less than the others.

Capital Expenditure.

The development to the South of the Island, which I mentioned in 1937, has necessitated heavy expenditure in providing new mains and in enlarging old ones. Then, again, new consumers have entailed the purchase of additional meters. In the past we have always understood that dry meters would not be a success in Bombay, but the continued increase in the cost of wet meters caused the Board to induce the Bombay Staff to experiment with the dry meter. I am glad to tell you that we have had dry meters in use for three years now, and that they are proving satisfactory. They are much cheaper than wet meters, and have saved the Company a considerable sum in capital expenditure.

New mains and new meters are not the only items on which capital expenditure has been incurred. The plant has had to be augmented to cope with the increased demand for gas by the installation of an additional condenser and another washer. An up-to-date exhauster has been also sent out, while at the moment the old governor and station meter house is being altered, and a new governor and booster house is in course of erection.

There is no doubt but that in the early history of the Company it was over-capitalized; but the prudent policy of the Board in later years of charging, where possible and advisable, capital expenditure to revenue, has repaired to a large degree that drawback. It is now some 34 years ago since I joined the Company. The annual sale of gas was then in the region of 128 million cu.ft., the capital issued was £240,000, and the amount expended per million cu.ft. of gas sold was £1,794. To-day the sale of gas is 596 million cu.ft., the capital issued is only £300,000, and the amount expended per million cu.ft. of gas sold is £677. Those of us who make a study of gas companies' statistics will agree that this last figure is eminently satisfactory, and one of which more than one gas company in this country would be justly proud. Moreover, it is an indication of the sound position of the Company.

A Larger Revenue.

We will now turn to the Revenue Account. The increase in the receipts from gas sales is £6,297, due to a little over 30 million cu.ft. more gas having been sold, or 5·4% increase. The increase recorded in the previous year was 8·38%, so that the further increase this year is particularly gratifying. It is interesting to record that since the year 1931 the annual sale of gas has increased by 100 million cu.ft., or 21%. The receipts for meter, stove, and refrigerator rentals have increased by £993, due to an increase of 985 consumers and to more cookers, water heaters, refrigerators, and other kinds of appliances having been placed on the district, aggregating 3,475 gas-consuming appliances, against 2,801 during the previous year. Residuals have brought in £2,226 more, the bulk of which is due to increased sales of coke at slightly better prices.

The tar market has been again a very difficult one. In past years I have explained how severe is the competition from coke-oven products. In spite, however, of this competition, we managed to dispose of 63,407 gallons more of tar, but the price obtained was a little lower than that for the year 1937. Efforts are at present being made to develop the use of the Company's road tar, and to raise the quality of it to that of the British Standard Specification. This is a somewhat new project, and the General Manager in Bombay and his Staff are much interested in endeavouring to make a success of it.

The total revenue has increased by £9,517, and the total expenditure has increased by £9,224.

Heavier Expenditure.

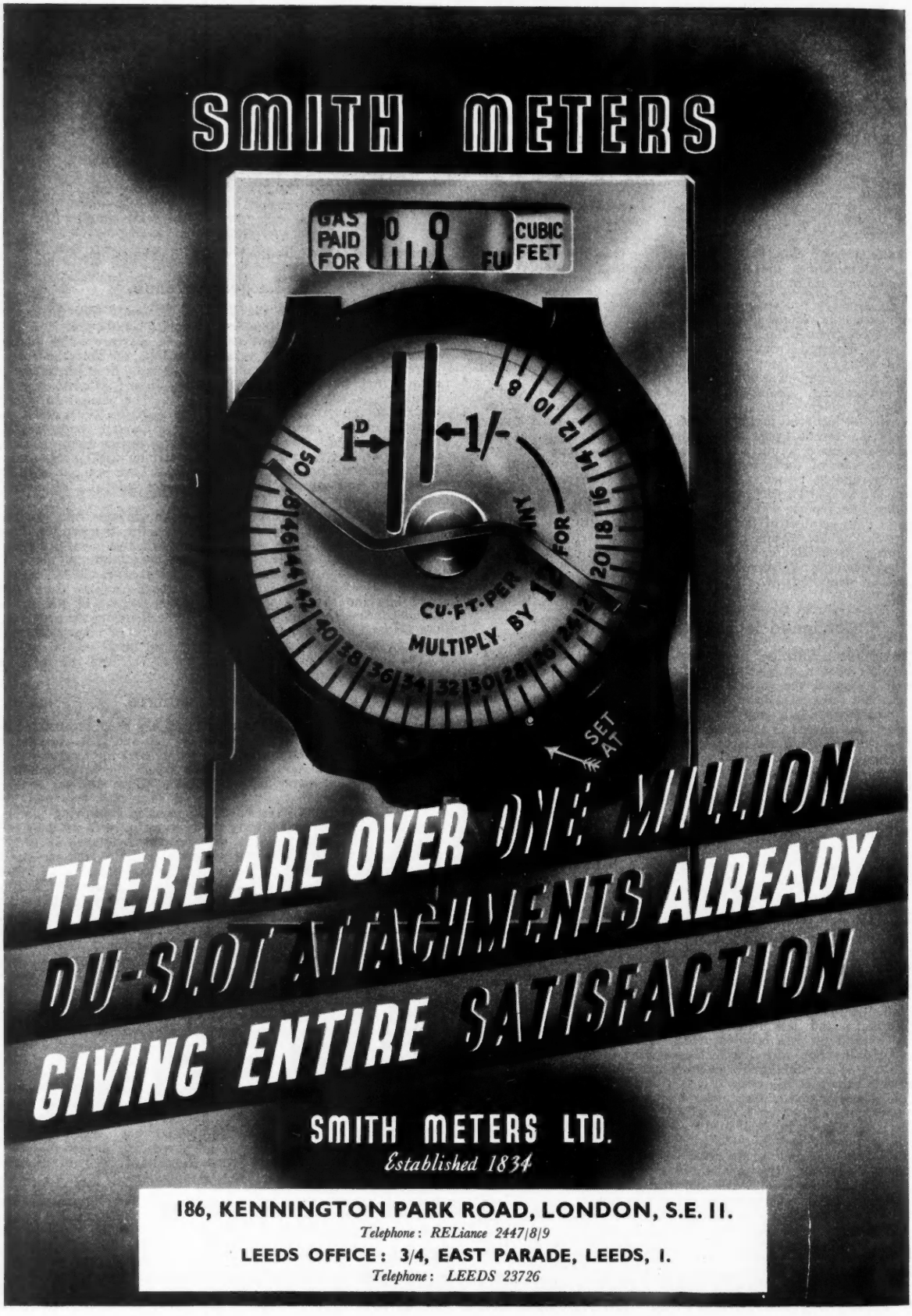
Coals have cost £3,700 more, but that has been necessitated by a larger quantity having to be carbonized, and it is also due to an increase of 4d. per ton in the price of coal for ten months of the year. We still have two years to run of the favourable coal contracts which I mentioned in 1937, and which we have enjoyed for some years.

Considerable sums have been disbursed in improving the distribution system, which, owing to the rapid growth of the Company over the last few years, had become overtaxed in certain parts of the Island. The cost of repairing mains and services is £1,983 less, but in 1937 we were able to charge to revenue a sum of £3,000 in respect of capital expenditure on new mains, against nothing for the year under review. The cost of repairing meters, cookers, and refrigerators is £2,670 more, which is mainly accounted for by increased depreciation. Income-tax and National Defence contribution accounts for the increase of £1,868 under the heading of "Rents, Rates, and Taxes." I notice that more than one Chairman has laid stress on the fact that with income-tax at 5s. 6d. in the pound, and the National Defence contribution at 5%, industrial profits are taxed at the highest rate ever known. Management expenses show a decrease of £1,551, mainly due to there having been charged in the accounts for 1937 the cost of insuring the Company's property against fire for a period of three years, and to the cost of making up the Works private road to the requirements of the Municipality in 1937.

The balance of working profit in No. 3 Account shows a small increase of £292, at £24,329; but as the dividend recommended of 8% requires £24,000, it shows that, in spite of increased costs, the Company has earned the dividend.

Net Revenue Account.

The Net Revenue Account, I think, speaks for itself. The continual fall in the value of gilt-edged securities is a matter over which we have no control, and, as you are aware, market values are to-day governed very much by the international situation. It is a very difficult question for all those who have money to invest to make any reliable choice. We have been forced again to charge against profits the cost of depreciating our investments to the mean market value at Dec. 31, 1938, which cost was £1,046. The previous year we wrote off £2,048. An item requiring a


SMITH METERS
GAS PAID FOR
CUBIC FEET
1d
1/-
CU-FT-PER
MULTIPLY BY
SET AT
THERE ARE OVER ONE MILLION
DU-SLOT ATTACHMENTS ALREADY
GIVING ENTIRE SATISFACTION
SMITH METERS LTD.
Established 1834
186, KENNINGTON PARK ROAD, LONDON, S.E. 11.
Telephone: RELiance 2447/8/9
LEEDS OFFICE: 3/4, EAST PARADE, LEEDS, 1.
Telephone: LEEDS 23726

little explanation is the Exchange Equalization Account debit of £2,086 1s. 7d. All rupee transactions are converted at 1s. 4d. sterling, as stated at the top of the first page of the Accounts. The sterling par value of the rupee, however, is, and has been for some years, fixed by the Government of India at 1s. 6d. per rupee. Now, in view of the fact that the rate of exchange has remained steady for some years, we have decided, and the Company's Auditors have agreed with our decision, to convert the accounts as from Jan. 1, 1939, at 1s. 6d. sterling.

The available balance for the year is £59,145 19s. 5d., which is only £718 less than last year; but, in view of the various factors which have gone to make up this result, I think you will agree that the Accounts show a financial position which is very satisfactory.

The Balance-Sheet requires little explanation. The cash in hand is less by £3,957, but I ought to explain that we have invested temporarily in the purchase of stores and apparatus an increased sum of £8,710, and "Remittances in Transit" are £1,000 more. On the liabilities side, you will see that the Reserve and Renewal Funds have been increased by over £3,000, to an aggregate of £67,562. The Provident Fund is increased by £4,779. We are considering the advisability of placing this Fund or at any rate the Members' Balances outside the business of the Company. Sundry Accounts outstanding are £3,499 more, but these have since been all paid.

That gentlemen, concludes my résumé of the Accounts for the year.

Prospects.

You will, perhaps, wish me to say something as to the future, but in these days of unsettled conditions it is both impossible and unwise to attempt to prophesy. The international situation, and world affairs, will have considerable influence on all business. As you have no doubt read in the Press reports, the Government of Bombay have introduced increased taxation to meet the loss of taxes due to prohibition of the sale of spirituous liquors. These increased taxes may, we are told, adversely affect the various development schemes in Bombay, but our General Manager in Bombay, Mr. Lane, is optimistic, and concludes his Annual Report by saying that he has every confidence in the continuation of the progress and prosperity of the City of Bombay. If this opinion materializes, then the Company will automatically share in the benefit.

Vote of Thanks to Staff.

I now come to the most pleasant part of my task this afternoon—namely, to propose a sincere vote of thanks to both the European and Indian Staffs in India, as well as to the London Staff. Our Staff in Bombay, led by Mr. Lane (who has been with us for 38½ years), has again had a strenuous year, and we are indebted to them all to a large extent for the results which we have before us. I have often mentioned individually the various officials in Bombay, but to-day I am only going to say that I reiterate all that has been said in their favour in previous years, regarding their ability and zeal. I am convinced that they all use their best endeavours to popularize the sale of gas in Bombay. The Indian Staff contribute in no small degree to this, and they continue to serve the Company loyally. In return, they are awarded at the end of their period of service with the Company, as you will have gathered from the large Provident Fund standing to their credit in the Balance-Sheet.

As to the London Staff, I myself benefit so largely from their willing and able assistance that I owe them a great measure of gratitude, both individually and collectively, for their excellent and able service. The work which falls to their lot is not only zealously performed, but is most ably carried out—in fact, after an experience of nearly 50 years in similar positions to that which I have had the honour to occupy as your Chairman, I can unhesitatingly assure you that their work is deserving of the highest praise. In my opinion, it could not be better done.

I do not think that I need take up any more of your time, so I will formally move:

> "That the Report of the Directors and the audited Statement of Accounts for the year ended Dec. 31, 1938, presented to the meeting, be and the same are hereby received, approved, and adopted."

Mr. H. H. MACLEOD (the Deputy-Chairman) formally seconded the resolution.

Mr. HYDE C. BURTON: As a comparatively new shareholder in the Company, I should like, if I may be permitted, to offer one or two remarks, though you, Sir, have dealt so completely with the principal features of the Accounts that some of the matters to which I was going to draw attention have been covered already. It does seem to me to be an admirable feature that the capital expenditure should have been reduced to so low a figure as £677 per million cu.ft. of gas sold. Again, it is enough to make our mouths water to hear of an increase of 4d. per ton in the cost of coal, when in this country we are being asked to pay more than as many shillings extra. It is certainly a most excellent result that the Bombay Company should be in a position to report an increase of 5½% in sales of gas, at a time when so many undertakings in this country have been faced with decreases. It is interesting to note that the Reserve Fund, the Renewal and Contingency Fund, and the Exchange Equalization Reserve Fund total nearly £70,000, or round about 23% of the issued share capital, and we are very glad to see that so large a proportion of this sum is invested outside the Company. If I might venture upon one small criticism, I would like to draw attention to the rather high figure for "Sundry Stores" in the Balance-Sheet. I have no doubt that they have been very conservatively valued; but it does seem to me that in these days, when obsolescence comes about so quickly—not so much through deterioration as from changes in design, &c.—it is very important to write off appliances most liberally. I am sure that this is your view. After meeting all the charges enumerated in the Report, there is carried forward a sum which is almost equivalent to two years' dividend. It is a remarkable Balance-Sheet, and as a newcomer I should like to extend to the Board my hearty congratulations upon it.

Mr. ROBERT H. GLEN: I should like to express my satisfaction that you are going to convert your rupees at 1s. 6d. As a chartered accountant myself, I certainly think that you are right in doing this. I am also glad to hear that you are now sending out dry meters, instead of wet meters. My experience in connexion with Colombo and Hong Kong is that it has been a very good move. I have no doubt it will prove to be so in your case also.

There being no other remarks, the resolution for the adoption of the Report and Accounts was put to the meeting and carried unanimously.

On the proposition of the CHAIRMAN, seconded by Mr. STANLEY H. JONES, it was agreed:

> "That a final dividend for the year ended Dec. 31, 1938, of 4½% (less Income-Tax at the rate of 2s. 9·56d. in the pound) be now declared payable on and after May 9, 1939, making, with the interim dividend of 3½% (less Income-Tax), a dividend of 8% (less Income-Tax) for the year."

Re-Elections.

Mr. A. M. PADDON: It is now my very pleasant duty to propose the re-election of the retiring Directors—Mr. William Graham Bradshaw, C.B.E., and Mr. George Evetts, M.Inst.C.E. If Mr. Bradshaw was not here, I could tell you a lot about him; but the fact that he is present inhibits me. These Accounts reflect years of skilful guidance and direction on his part. We owe the present position of the Company to Mr. Bradshaw, and it would certainly be something like a calamity if we did not secure his services for a further term. As to Mr. Evetts, you have heard his qualifications described, and, no doubt, most of you were aware of them. I have known him for many years, and sometimes I have been in active controversy with him, but that has made me think rather the more of him. He is a very valuable acquisition to the Board.

Mr. STANLEY JONES seconded the proposition, which was agreed to.

The CHAIRMAN: Thank you very much indeed. I do not deserve the nice things you have said about me.

Moved by Mr. F. R. SMITH, and seconded by Mr. A. DICKSON, it was resolved that Mr. Alfred Morland, F.C.A., and Mr. Frederick John Bradfield, F.C.I.S., be re-appointed Auditors for the ensuing year, at the same remuneration as heretofore.

Mr. BRADFIELD briefly returned thanks.

The CHAIRMAN: It is now my pleasure to move:

> "That the best thanks of the meeting be accorded to the Bombay and London Staffs for their services during the past year."

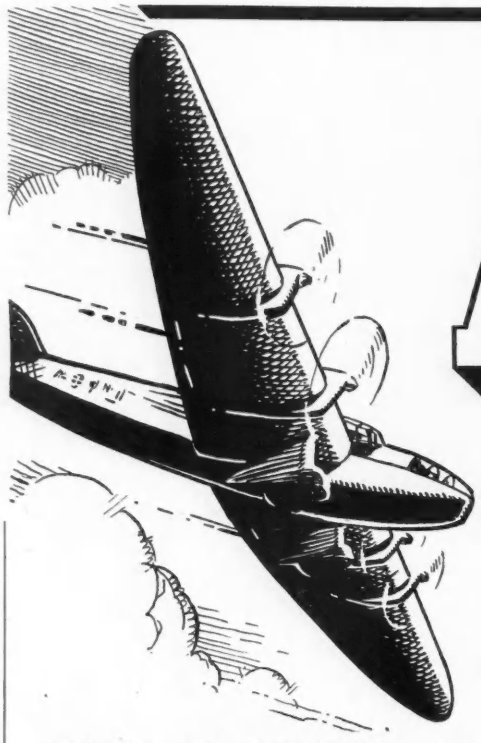
I have already said what strikes me with regard to their admirable services. I could not desire any better colleagues in London or in Bombay. We are most grateful to them for all that they do, and we are very glad when we are able to reward their services.

Mr. GEORGE EVETTS: While seconding that well-deserved vote, may I take the opportunity of thanking the Chairman and Mr. Paddon for their kind words, and the shareholders for my re-election?

The vote having been put to the meeting and cordially passed,

The CHAIRMAN said: I am sure it will be a great pleasure to our employees to hear that you appreciate their labours on your behalf.

The proceedings concluded with a vote of thanks to the Chairman and Directors for their services, which was proposed by Mr. F. R. SMITH, seconded by Mr. HYDE C. BURTON, and unanimously endorsed by the meeting.



A.R.P.

BRADDOCK'S

OIL SEALED

AUTOMATIC RELIEF VALVE

(PATENT APPLIED FOR)

SHOULD THE EXHAUSTER STOP OR A BLOCKAGE OCCUR IN THE WORKS MAIN, VALVE RELIEVES PRESSURE IMMEDIATELY AND SEALS AGAIN AUTOMATICALLY WHEN NORMAL CONDITIONS RETURN.
CAN BE SET TO "RELIEVE" AT ANY PRE-DETERMINED PRESSURE.

AUTOMATIC IN ACTION

ROBUST AND RELIABLE

PRICES AND PARTICULARS

APPLY TO **J. & J. BRADDOCK**
(BRANCH OF METERS, LTD.)
45/47, WESTMINSTER BRIDGE ROAD, LONDON, S.E.1
GLOBE METER WORKS, OLDHAM, AND
49/51, ABLOW STREET, WOLVERHAMPTON

Braddocks are Best

Markets and Manufactures

Current Sales of Gas Products

The London Market

May 1.

To-day's values of Tar Products are as follows:

Pitch is nominal at about 27s. 6d. per ton f.o.b.

Creosote, about 3½d. to 3¾d.

Refined tar, 3¾d.

Pure toluole, about 2s. 4d.

Pure benzole, about 1s. 9d.

95/160 solvent naphtha, 1s. 7d. to 1s. 8d.

90/160 pyridine, about 11s.

All per gallon naked at makers' works.

The Provinces

May 1.

Crude Gas-Works Tar, 12s. to 17s.

To avoid misunderstanding, it is necessary to state that the above price is not claimed to represent a market value. It is a price worked out from week to week upon a system which has been used for many years as a basis for the fixing of certain contracts for crude tar of varying qualities in different areas.

The average prices of gas-works products during the week were: Pitch—East Coast, 27s. to 28s. f.o.b. West Coast—Manchester, Liverpool, Clyde, 27s. to 28s.* Toluole, naked, North, 1s. 10d. to 1s. 11d. Coal tar, crude naphtha, in bulk, North 7¾d. to 8¼d. Solvent naphtha, naked, North, 1s. 4½d. to 1s. 5d. Heavy naphtha, North, 1s. 2¼d. to 1s. 3d. Creosote, *ex* works, in bulk, North, liquid and salty, 3¾d. to 4¼d.; low gravity, 4d. to 4¼d. Carbolic acid, 60's, 1s. 7d. to 1s. 10d. Naphthalene, £13 10s. to £16. Salts, 70s. to 75s., bags included. Anthracene, "A" quality, 4½d. to 4¾d. per minimum 40% purely nominal; "B" quality unsaleable. Heavy oil: Unfiltered anthracene oil, min. gr. 1,080, 4¾d. to 4¾d; filtered anthracene oil, min. gr. 1,080, 5¼d. to 5¾d.; heavy tar oil, gr. less than 1,080, 4¼d. to 4¾d.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls, whatever they may be.

Scotland

GLASGOW, *April* 29.

Trading is rather slow, but, if anything, there has been a slight improvement during the week. Prices of most products remain easy.

Crude gas-works tar.—The actual value is about 30s. to 32s. per ton *ex* works in bulk.

Pitch of vertical quality is offered at 20s. to 21s. per ton f.o.b. for export and round 20s. per ton *ex* works in bulk for home trade.

Refined tar.—It is anticipated that home demand will be well up to average with fixed price at 3¾d. to 4d. per gallon. Export business is slow, however, at about 2¾d. to 3d. per gallon, both into buyers' packages at makers' works.

Creosote oil.—Local distillers are comfortably placed and prices are fairly steady as under: Specification oil, 3½d. to 3¾d. per gallon; low gravity, 4¼d. to 4½d. per gallon; neutral oil, 3¾d. to 4d. per gallon; all *ex* works in bulk.

Cresylic acid is still a dull feature with supplies available at approximately as follows: Pale, 97/99%, 1s. 2d. to 1s. 3d. per gallon; dark, 97/99%, 1s. to 1s. 1d. per gallon; pale, 99/100%, 1s. 4d. to 1s. 7d. per gallon; all *ex* works in buyers' packages.

Crude naphtha.—Production is small and value is unchanged at round 5½d. to 6d. per gallon *ex* works in bulk, according to quality.

Solvent naphtha.—90/160 grade is 1s. 3½d. to 1s. 4d. per gallon and 90/190 heavy naphtha is about 1s. 1d. to 1s. 1½d. per gallon.

Motor Benzole is 1s. 3d. to 1s. 4d. per gallon.

Pyridine.—90/160 grade is 8s. 6d. to 9s. 6d. per gallon and 90/140 grade is 9s. 6d. to 10s. 6d. per gallon.

Benzole Prices

These are considered to be the market prices for benzole at the present time:

	s. d.		s. d.	
Crude benzole..	0 9½	to	0 10	per gall. at works
Motor „ ..	1 3	„	1 3½	„ „ „
90% „ ..	1 4	„	1 4½	„ „ „
Pure „ ..	1 8	„	1 8½	„ „ „

Contracts Advertised To-Day

Gas Coal.
Barnoldswick Urban District Council. [p. 354.]

Gas Nuts.
Borough of Tipton Gas Department. [p. 354.]

Plant for Extraction of Benzole from Gas.
Borough of Stourbridge Gas Department. [p. 354.]

Repairs to Gas Meters.
Borough of Mansfield. [p. 354.]

Stores.
Birmingham Gas Department. [p. 353.]

Supply of Lime.
Borough of Mansfield. [p. 354.]

Supply of New Gas Meters.
Borough of Mansfield. [p. 354.]

Surplus Tar.
Bingley Urban District Council. [p.354.]

Dividend Announcement

Montevideo Gas and Dry Dock Company, Ltd.—At the Ordinary General Meeting of the Montevideo Gas and Dry Dock Company, Ltd., to be held on May 23, the Directors will recommend payment of a final dividend of 2½%, free of income-tax, 1½% of which is payable on May 24, 1939, and 1% on Dec. 1, 1939, making, with the interim dividend of 1½% paid on Dec. 1, 1938, 4%, free of tax, for the year ended Dec. 31, 1938.

PROTECT WITH

METROTECT

a bituminous paint producing a pleasant satin black finish with highly waterproof and anti-corrosive properties.

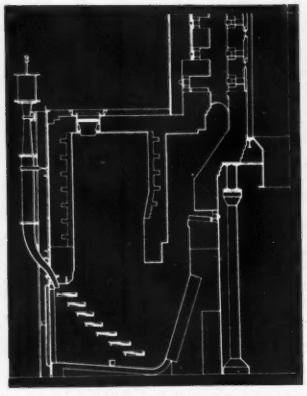
Protects steel-work which is continuously or periodically immersed in water. Does not become brittle on prolonged atmospheric exposure. METROTECT flows freely under the brush and can be applied quickly and without effort even in cold weather.

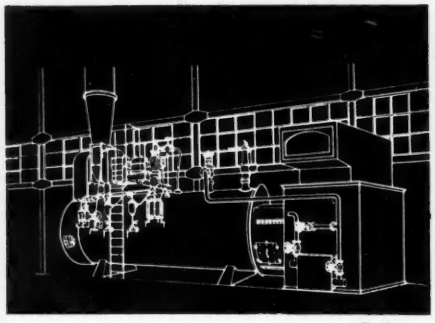
Prices and further particulars from—

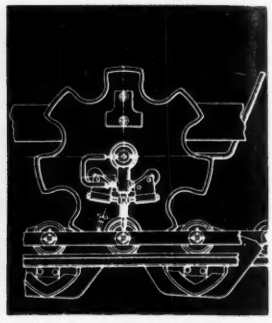
SOUTH METROPOLITAN GAS CO.

PRODUCTS DEPARTMENT,
REGIS HOUSE,
KING WILLIAM STREET,
E.C.4.

Modern DESIGN... MODERN EQUIPMENT







FOR THE RETORT HOUSE

Fuel-gas generation in pressure-operated producers; steam-raising by waste-heat recovery; and automatic force-feed lubrication applied to coal and coke conveyors are amongst the standard features of the modern Glover-West vertical retort installation.

WEST'S

CARBONIZING PLANTS

***Blackpool's new carbonizing plant will be* GLOVER-WEST VERTICALS**

WORK is proceeding on a 72-retort installation of Glover-West vertical retorts at the new Marton gas works for the Blackpool Corporation Gas Department. The plant will be equipped with pressure type producers, waste-heat boilers, dust extraction and air-conditioning plants, together with extensive coaling equipment and coke handling, cutting, grading and de-dusting units. The drawing shows the architectural design of the retort house and coke plant.

WEST'S
GAS IMPROVEMENT CO · LTD
Miles Platting · Manchester 10
Telephone · Collyhurst 2961 Telegrams · Stoker, Manchester

Glover-West Vertical Retorts · Westvertical Carbonizing Chambers

435 INSTALLATIONS BUILT OR ORDERED IN 24 COUNTRIES

GAS STOCKS AND SHARES

Markets were overshadowed by three important events last week—the Budget on Tuesday, the announcement of conscription on Wednesday, and on Friday the German Chancellor's speech. It was not surprising therefore that the volume of business continued at a minimum. The Budget was well received in the City and in the absence of any increase in income-tax a number of prices were marked up, though subsequent events soon brought the inevitable reactions. Compared with the previous week, British Funds and home rails recorded only fractional changes either way. Industrials were mostly downwards, recoveries being almost confined to tobacco and brewery shares. Considerable recovery was noticeable on Friday, but this was due rather to closing operations on the part of speculators than to any reaction to Herr Hitler's speech.

The volume of business in the Gas market was also on a very small scale, and several stocks which had not been so drastically marked down during the past two weeks suffered further falls. It is satisfactory to note, however, that Gas Light units recovered 9d. to 20s. 9d., and Imperial Continental rose 6½ points to 109½. Is this the turning point? It would be foolish to prophesy that prices have now reached bottom, but recent events have certainly created an improved sentiment.

The Supplementary List received more attention last week, and it will be seen the nominal prices of several high-priced stocks were severely marked down to bring them more into line with official quotations. The only change of note on the Provincial Exchanges was a sharp fall of 10 points to 90 in Newcastle 4% preference, the stock changing hands at this price.

Official Quotations on the London Stock Exchange

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations April 28.	Rise or Fall on Week.
1,767,439	Mar. 6	8	8	Alliance & Dublin Ord. ...	130—140	...
374,000	Dec. 19	4	4	Do. 4 p.c. Deb. ...	90—95	...
734,733	Nov. 7	5	5	Asscd. Gas & Water U'd'ts Ord.	17/—19/–	...
500,000	,,	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	19/—21/–	...
444,389	,,	4	4	Do. 4 p.c. Red. Cum. Pref.	19/—21/–	...
296,523	,,	4	4	Do. 4 p.c. Irred. Cum. Pref.	16/—18/–	...
500,000	Mar. 6	3½	3½	Do. 3½ p.c. Red. Deb. ...	92—97	...
560,070	Feb. 20	7	7	Barnet Ord. 7 p.c.	155—160	...
300,000	Apl. 6	1/4⅜	1/9⅜	Bombay, Ltd.	17/—20/–	—/6
181,185	Feb. 20	9½	9½	Bournemouth sliding scale ...	192—202	...
690,526	,,	7	7	Do. 7 p.c. max. ...	153—158	...
493,960	,,	6	6	Do. 6 p.c. Pref. ...	127—132	—1
50,000	Dec. 19	3	3	Do. 3 p.c. Deb. ...	70—75	...
362,025	,,	4	4	Do. 4 p.c. Deb. ...	95—100	+3
335,000	,,	5	5	Do. 5 p.c. Deb. ...	110—115	...
357,900	Feb. 20	7½	7½	Brighton, &c., 6 p.c. Con. ...	135—140	—5
659,955	,,	6½	6½	Do. 5 p.c. Con. ...	120—125	...
205,500	,,	6	6	Do. 6 p.c. 'B' Pref.	120—125	...
855,000	Mar. 20	7	8	British Ord.	115—125	—7½
100,000	Dec. 19	7	7	Do. 7 p.c. Pref.	138—143	...
350,000	,,	5½	5½	Do. 5½ p.c. 'B' Cum. Pref.	110—115	—2
120,000	,,	4	4	Do. 4 p.c. Red. Deb. ...	93—98	...
450,000	,,	5	5	Do. 5 p.c. Red. Deb. ...	100—105	...
450,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95	...
100,000	22 May '33	6	4	Cape Town, Ltd.	1—2	...
100,000	6 Nov. '33	4½	4½	Do. 4½ p.c. Pref. ...	1—2	...
150,000	Dec. 19	4½	4½	Do. 4½ p.c. Deb. ...	60—70	...
626,860	Feb. 6	6	6	Cardiff Con. Ord.	113—118	...
237,860	Dec. 19	5	5	Do. 5 p.c. Red. Deb. ...	103—108	...
98,936	Mar. 20	2/–	2/–	Colombo Ord.	1⅞—1¾	...
24,510	,,	1/4½	1/4½	Do. 7 p.c. Pref. ...	22/—24/–	...
739,453	Mar. 20	–/11·48	–/11·48	Colonial Gas Assn. Ltd. Ord.	16/—18/–	...
296,144	,,	1/3·30	1/3·30	Do. 8 p.c. Pref. ...	23/—25/–	...
1,775,005	Jan. 23	5	4	Commercial Ord.	48—58	...
140,000	Feb. 6	§13/4	4	Do. 4 p.c. Red. Pref. ...	95—100	...
620,000	Dec. 5	3	3	Do. 3 p.c. Deb. ...	60—65	...
286,344	Feb. 20	5	5	Do. 5 p.c. Deb. ...	103—108	...
200,000	,,	4⅜	4	Do. 3½ p.c. Red. Deb. ...	95—100	...
807,560	Feb. 20	7	7	Croydon sliding scale ...	123—128	—2
644,590	,,	5	5	Do. max. div.	94—99	—1
620,385	Dec. 19	5	5	Do. 5 p.c. Deb.	108—113	...
239,000	Feb. 6	5	5	East Hull Ord. 5 p.c.	90—95	...
187,215	Feb. 6	6	6	East Surrey Ord. 5 p.c. ...	113—118	...
176,211	Dec. 5	5	5	Do. 5 p.c. Deb ...	110—115	...
250,000	Nov. 7	8	4	Gas Consolidation Ord. 'B' ...	19/—21/–	...
250,000	,,	4	4	Do. 4 p.c. Red. Cum. Pref.	17/6—19/6	...
19,189,963	Feb. 6	5⅔	5⅔	Gas Light & Coke Ord. ...	20/3—21/3a	+–/9
2,600,000	,,	3½	3½	Do. 3½ p.c. max. ...	70—74	...
4,477,106	,,	4	4	Do. 4 p.c. Con. Pref. ...	87—92	...
2,993,000	Jan. 9	3½	3½	Do. 3½ p.c. Red. Pref. ...	92—97	...
8,602,497	Nov. 21	3	3	Do. 3 p.c. Con. Deb. ...	68—73	...
3,642,770	,,	5	5	Do. 5 p.c. Red. Deb. ...	105—110	...
3,500,000	,,	4½	4½	Do. 4½ p.c. Red. Deb. ...	101—106	...
700,000	Mar. 6	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95	...
270,466	Feb. 20	6	6	Harrogate New Cons. ...	115—120	...
157,500	Mar. 20	‡1/–	‡1/–	Hong Kong and China Ord. ...	⅛—¼	...
213,200	Feb. 6	5⅝	6	Hornsey Con. 3½ p.c. ...	97—102	...
5,600,000	Oct. 24	12	8	Imperial Continental Cap. ...	107—112	+6½
172,810	Jan. 23	3½	3½	Do. 3½ p.c. Red. Deb. ...	87—92	...
235,242	Mar. 6	8½	8½	Lea Bridge 5 p.c. Ord. ...	145—155	...
63,480	Dec. 19	3	3	Maidstone 3 p.c. Deb. ...	63—68	...
45,000	Nov. 21	†10	†10	Malta & Mediterranean ... Metropolitan (of Melbourne)	130—135	...
392,000	Apl. 6	5½	5½	5½ p.c. Red. Deb.	98—103	...
231,977	Feb. 20	5	5	M.S. Utility 'C' Cons. ...	96—101	...
968,658	,,	4	4	Do. 4 p.c. Cons. Pref. ...	83—88	–2
390,076	Dec. 19	4	4	M.S. Utility 4 p.c. Deb. ...	90—95	...
148,955	,,	5	5	Do. 5 p.c. Deb. ...	107—112	...
125,000	Jan. 3	3½	3½	Do. 3½ p.c. Red. Bds.	94—97	...
675,000	Nov. 21	†6	†6	Montevideo, Ltd.	65—70	...
250,000	Mar. 6	7½	7½	North Middlesex 6 p.c. Con.	140—145	...
396,160	Feb. 6	5	5	Northampton 5 p.c. max. ...	103—108	...
300,000	April 24	†9	†7	Oriental, Ltd.	142—147*	—3
468,537	Dec. 5	8	7½	Plymouth & Stonehouse 5 p.c.	130—140	...
621,667	Feb. 20	8½	8½	Portsmouth & Gosport Cons.	145—155	...
241,446	,,	5	5	Do. 5 p.c. max. ...	98—103	...
73,350	,,	5	5	Do. 5 p.c. Pref. ...	102—107	—1
75,000	,,	4	4	Do. 4 p.c. Pref. ...	82—87	—3
114,000	Feb. 6	5	5	Preston 5 p.c. Pref.	105—110	...
247,966	Dec. 19	4	4	Primitiva 4 p.c. Cons. Deb. ...	96—101	...
625,959	Jan. 9	4	4	Do. 4 p.c. Red. Deb. ...	94—99	...
15,000	Mar. 6	6	6	San Paulo 6 p.c. Cum. Pref. ...	8—9	...
441,275	Sept. 19	1/1½	1/1½	Severn Val. Gas Cor. Ld. Ord.	20/6—22/6	...
460,810	Mar. 20	–/10½	–/10½	,, ,, 4½ p.c. Cum. Pref.	19/—21/–	...
133,201	Mar. 6	8½	5	Shrewsbury 5 p.c. Ord. ...	141—146	...
9,000	June 3	4	‡4	South African Ord.	4½—5½	...
1,371,752	April 24	1/2½	1/2½	South East'n Gas Cn. Ld. Ord.	20/6—22/6*	...
871,636	Mar. 6	–/10½	–/10½	Do. 4½ p.c. Red. Cum. Pref.	19/—21/–	...
498,818	,,	4	4	Do. 4 p.c. Cum. Pref. ...	17/—19/–	...
450,000	Feb. 6	4	4	Do. 4 p.c. Deb.	95—100	...
150,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95	...
6,709,895	Feb. 6	5	6	South Met. Ord.	81—86	—1½
1,135,812	,,	6	6	Do. 6 p.c. Irred. Pref. ...	118—123	...
850,000	,,	4	4	Do. 4 p.c. Irred. Pref. ...	85—90	...
1,895,445	Dec. 19	3	3	Do. 3 p.c. Deb.	67—72	...
1,000,000	Jan. 9	5	5	Do. 5 p.c. Red. Deb. ...	104—108	...
600,000	,,	§31/–	3½	Do. 3½ p.c. Red. Deb. ...	93—98	...
1,543,795	Jan. 23	6	6	South Suburban Ord. 5 p.c. ...	100—110	—1½
512,825	,,	5	5	Do. 5 p.c. Pref.	103—108	...
500,000	,,	4	4	Do. 4 p.c. Pref.	83—88	—2
250,000	,,	3½	3½	Do. 3½ p.c. Red. Pref. ...	90—95	...
888,587	Dec. 5	5	5	Do. 5 p.c. Deb.	107—112	...
250,000	,,	4	4	Do. 4 p.c. Deb.	90—95	...
200,000	Feb. 6	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95	...
427,859	Apl. 6	9⅜	1/2½	S. Western Gas & Water Ord.	15/6—17/6	...
160,523	Apl. 6	–/10½	–/10½	Do. 4½ p.c. Red. Cum. Pf.	18/6—20/6	...
110,000	Dec. 19	4	4	Do. 4 p.c. Red. Deb. ...	93—98	...
750,541	Feb. 6	5	5½	Southampton Ord. 5 p.c. ...	104—109	...
148,836	Dec. 19	4	4	Do. 4 p.c. Deb.	90—95	...
350,000	Feb. 6	5½	5½	Swansea 5½ p.c. Red. Pref. ...	104—109	...
200,000	Dec. 19	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95	...
1,076,490	Feb. 20	6½	6½	Tottenham and District Ord.	110—120	—4½
409,835	,,	5½	5½	Do. 5½ p.c. Pref.	112—117	...
62,235	,,	5	5	Do. 5 p.c. Pref.	103—108	...
453,380	Dec. 5	4	4	Do. 4 p.c. Deb.	90—95	...
85,701	Jan. 9	6	6	Tuscan 6 p.c. Red. Deb. ...	95—100	...
1,131,550	Aug. 22	6	4	U. Kingdom Gas Cor. Ord. ...	16/—18/–	—1/3
1,051,280	Nov. 7	4½	4½	Do. 4½ p.c. 1st Cum. Pref.	18/6—20/6	...
762,241	,,	4	4	Do. 4 p.c. 1st Red. Cum. Pf.	18/6—20/6	...
745,263	Dec. 19	4½	4½	Do. 4½ p.c. 2nd Non-Cum. Pf.	14/—16/–	—/6
1,066,186	Mar. 6	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95	—3½
378,106	Mar. 6	7	7	Uxbridge, &c., 5 p.c.	120—125	—2
133,010	,,	5	5	Do. 5 p.c. Pref. ...	102—107	...
1,371,138	Jan. 23	7	7	Wandsworth Consolidated ...	110—120	—7½
2,525,768	,,	4	4	Do. 4 p.c. Pref. ...	82—87	—3
1,343,964	Dec. 19	5	5	Do. 5 p.c. Deb. ...	107—112	...
383,745	,,	4	4	Do. 4 p.c. Deb. ...	90—95	...
400,000	,,	§25/–	3⅜	Do. 3⅜ p.c. Red. Deb. ...	93—98	...
558,342	Feb. 6	6½	6½	Watford and St. Albans Ord.	120—130	—2½
200,000	,,	5	5	Do. 5 p.c. Pref. ...	102—107	...
200,000	,,	5½	5½	Do. 5½ p.c. Pref. ...	110—115	...
200,000	,,	§16/8	4	Do. 4 p.c. Rd. Pf. (1973/8)	93—98	...
100,000	—	—	—	Do. 4 p.c. Red. Pf. (1959)	97—102	...
200,000	Dec. 19	4	4	Do. 4 p.c. Red. Deb. ...	95—100	...
200,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95	...

a.—The quotation is per £1 of stock. * Ex. div. † Paid free of income-tax. ‡ For year. § Actual.

Supplementary List and Provincial Exchanges overleaf.

STOCK AND SHARE LIST—Cont.

Supplementary List, not Officially Quoted, London

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Nominal Quotations April 28.	Rise or Fall on Week.
202,152	Mar. 20	5	5	Ascot Ord.	99—104	...
128,182	Dec. 19	5	5	Do. 5 p.c. Pref.	102—107	...
31,035	Mar. 20	-/4⅞	-/4⅞	Associated Utilities 4 p.c. Pref.	15/—17/-	...
100,000	Dec. 19	3½	3½	Do. 3½ p.c. Red. Deb. ...	95—100	...
17,000	Feb. 20	8	8	Bognor Orig. Ord. 'A' ...	142—152	...
62,210	,,	8	8	Do. New Addl. 'A' ...	142—152	...
87,160	,,	7	7	Do. New 7 p.c. max. ...	140—150	...
37,440	Feb. 6	10	10	Cam. Univ. & Town 10 p.c. max.	165—175	−18
125,970	,,	7	7	Do. 7 p.c. max.	115—125	−13½
39,025	,,	5	5	Do. 5 p.c. max.	95—100	...
96,410	Feb. 6	4½	4½	Cardiff 4½ p.c. Pref. ...	93—98	...
150,000	Feb. 20	4	4	Croydon 4 p.c. Pref.	91—96	...
130 000	Dec. 19	4	4	Do. 4 p.c. Deb.	92—97	...
65,000	Mar. 6	7½	7½	Eastbourne 'A' 5 p.c. ...	122—132	...
198,000	,,	6	6½	Do. 'B' 3½ p.c.	105—115	...
112,312	,,	5	5	Do. 5 p.c. Pref.	102—107	...
130,000	Dec. 19	5	5	Do. 5 p.c. Deb.	107—112	...
24,000	Feb. 20	8½	8½	Great Yarmouth 8½ p.c. max.	30—35	...
59,400	,,	7½	7½	Do 7½ p.c. max.	27—32	...
51,160	Dec. 5	5½	5½	Do. 5½ p.c. Deb.	117—122	...
152,600	Feb. 20	8	9	Guildford Cons.	160—165	...
54,055	,,	5	5	Do. 5 p.c. Pref.	102—107	...
68,250	Dec. 19	5	5	Do. 5 p.c. Deb.	105—110	...
156,600	Feb. 20	7½	7½	Hampton Court Cons. ...	110—120	−7½
80,000	Mar. 6	4	4	Lea Bridge 4 p.c. Pref. ...	82—87	−3
60,000	,,	6	6	Do. 6 p.c. Pref.	118—123	...
94,876	Dec. 5	4	4	Do. 4 p.c. Deb.	87—92	...
73,620	Mar. 6	8½	8½	Luton Cons. 'A'	150—160	...
107,960	Mar. 20	4	5½	Mid Kent Ord.	8½—9½	...
230,940	Feb. 6	10	10	Oxford & District Ord. ...	165—175	−24½
47,112	,,	5	5	Do. 5 p.c. Pref.	102—107	...
50,000	,,	6	6	Do. 6 p.c. Red. Pref. ...	108—113	...
126,193	Nov. 7	7½	7½	Peterborough Ord.	137—142	...
64,990	Mar. 6	7½	7½	Redditch Ord.	115—125	...
166,850	Feb. 6	8	8	Romford Ord.	137—142	...
60,000	,,	4	4	Do. 4 p.c. Pref.	97—102	...
44,000	Mar. 20	5	5	Do. 5 p.c. Deb.	107—112	...
25,570	Feb. 6	5½	5½	Rugby 5½ p.c. Pref.	118—123	...
25,000	,,	6	6	Do. 6 p.c. Red. Pref. ...	103—108	...
42,750	Dec. 5	5½	5½	Do. 5½ p.c. Deb.	115—120	...
110,950	Feb. 20	8	8	Ryde Ord.	137—147	...
270,086	Mar. 20	7	7	Slough Ord.	120—130	−3½
21,000	Dec. 19	5	5	Do. 5 p.c. Deb.	105—110	...
28,872	Nov. 7	5½	5½	S. Midland Gas Cpn. Ltd. Ord.	17/—19/-	...
28,866	Mar. 6	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	17/—19/-	...
117,228	Feb. 20	5	7	Swindon Cons.	100—105	...
60,425	Dec. 5	5	5	Do. 5 p.c. Deb.	105—110	...
64,380	Dec. 19	5	5	Torquay & Paignton 5 p.c. Pref.	102—107	...
130,000	Feb. 6	5	8	Wakefield Ord.	116—121	...
81,650	,,	5	5	Do. 5 p.c. max.	92—97	...
82,000	Jan. 23	6	6	Weymouth Ord.	101—106	...
98,384	Feb. 6	6	6	Wolverhampton 6 p.c. Pref.	115—120	...
160,000	Dec. 19	5½	5½	Do. 5½ p.c. Rd. Db.	103—108	...
90,000	Dec. 19	5	5	York 5 p.c. Red. Deb. ...	102—107	...
133,640	Feb. 20	6½	6½	Yorktown (Cam.) 5 p.c. Cons.	115—120	...
120,000	,,	5	5	Do. 5 p.c. Pref.	102—107	...
35,000	Dec. 5	5½	5½	Do. 5½ p.c. Deb.	112—117	...

BRISTOL EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations April 28.	Rise or Fall on Week.
347,756	Feb. 6	5	6	Bath Cons.	115—117	...
1,667,250	Feb. 6	5	5	Bristol, 5 p.c. max.	105—108	...
120,420	Dec. 19	4	4	Do. 1st 4 p.c. Deb. ...	98—101	...
415,250	,,	4	4	Do. 2nd 4 p.c. Deb. ...	98—101	...
328,790	,,	5	5	Do. 5 p.c. Deb.	115—118	...
274,000	Feb. 20	5	5	Newport (Mon.) 5 p.c. max. ...	95—97	...
13,200	Mar. 20	7	8⅝	Pontyp'l Gas & W. 10 p.c. 'A'	12⅛—13½	...
13,600	,,	6	5	Do. 7 p.c. 'B' ...	11½—12	...
40,000	,,	6	5	Do. 7 p.c. 'C' ...	11½—12	...
140,778	Feb. 6	5	5	Weston-super-Mare Cons. ...	103½—105½	...
64,338	Dec. 19	4	4	Do. 4 p.c. Deb. ...	98—101	...
33,340	,,	7½	7½	Do. 7½ p.c. Deb. ...	149—152	...

LIVERPOOL EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations April 28.	Rise or Fall on Week.
157,150	Feb. 6	5	6½	Chester 5 p.c. Ord.	107—110	...
92,500	Dec. 19	4	4	Do. 4 p.c. Pref.	95—99	...
36,430	,,	3½	3½	Do. 3½ p.c. Deb.	87—90	...
41,890	,,	4	4	Do. 4 p.c. Red. Deb. ...	97—101	...
2,167,410	Feb. 20	6	6	Liverpool 5 p.c. Ord.	117—119	−1
245,500	Dec. 19	5	5	Do. 5 p.c. Red. Pref. ...	100—105	...
306,083	Jan. 23	4	4	Do. 4 p.c. Deb.	99—101	...
106,280	Feb. 6	10	10	Preston 'A' 10 p.c.	177—187	...
188,219	,,	7	7	Do. 'B' 7 p.c.	129—139	...

NEWCASTLE EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations April 28.	Rise or Fall on Week.
122,577	Feb. 20	8	8	Blyth 5 p.c. Ord.	157½—158½	...
732,000	Feb. 20	3	3	Hartlepool G. & W. Cn. & New	69—71	...
2,061,315	Feb. 6	5	5½	Newcastle & Gateshead Con.	20/9—21/3a	...
682,856	,,	4	4	Do. 4 p.c. Pref. ...	89—91	−10
776,706	Dec. 19	3½	3½	Do. 3½ p.c. Deb. ...	88—89	...
277,285	April 24	5	5	Do. 5 p.c. Deb. '43 ...	101—103*	−2
332,351	Feb. 6	6	6	Sunderland 6 p.c. max. ...	132½—134½	...

NOTTINGHAM EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations April 28.	Rise or Fall on Week.
542,270	Feb. 6	6	9	Derby Con.	132—137	...
55,000	Dec. 19	4	4	Do. 4 p.c. Deb. ...	100—105	...
20,000	Dec. 19	5	5	Long Eaton 5 p.c. Pref. ...	10—12	...
80,000	,,	5	5	Do. 5 p.c. Deb. ...	105—110	...

SHEFFIELD EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations April 28.	Rise or Fall on Week.
10,000	Feb. 6	10	10	Great Grimsby 'A' Ord. ...	180—190	...
6,500	,,	10	10	Do. 'B' Ord. ...	180—190	...
79,000	,,	10	10	Do. 'C' Ord. ...	175—185	...
1,806,339	Feb. 20	6½	6½	Sheffield Cons.	136—139	...
95,000	Dec. 19	4	4	Do. 4 p.c. Deb.	100—102	...

a The quotation is per £1 of Stock.
* Ex div.

For Publisher's Notice, Terms of Subscription, etc., see last week.

EDUCATIONAL.

AUTHORITATIVE TRAINING FOR GAS ENGINEERS.

THE T.I.G.B. conducts the world's widest choice of engineering courses by correspondence—over 200—covering all branches.

THE DEPARTMENT OF FUEL TECHNOLOGY covers GAS SUPPLY, GAS ENGINEERING, GAS POWER ENGINEERING, and THE CERTIFICATES OF THE INSTITUTION OF GAS ENGINEERS.

Write to-day for "The Engineer's Guide to Success"—FREE—which alone gives the regulations governing admission to the various examinations such as A.M.I.Gas E., A.M.Inst.C.E., A.M.I Mech.E., A.M.I.E E., C. & G., B.Sc. (Eng.), &c.

THE TECHNOLOGICAL INSTITUTE OF GREAT BRITAIN,
148, TEMPLE BAR HOUSE, LONDON, E.C. 4
(FOUNDED 1917. 20,000 SUCCESSES.)

BROADBENT'S SLAG WOOL
THE WORLD'S FINEST
FIRE-PROOF NON-CONDUCTING material for
GAS PLANT
of every description
J. C. BROADBENT & Co., LTD.
SLAG WOOL WORKS, REDCAR, YORKS
36, BASINGHALL ST., LONDON, E.C.2

SULPHUR REMOVAL
For Ease and Economy use LUX
Sole Agents :—
HARRISONS (London) LTD.
66, MARK LANE, LONDON, E.C. 3

STRACHAN & HENSHAW LTD.
MANUFACTURERS **BRISTOL.**
and CONTRACTORS for
HANDLING PLANT
SCREENS, TIPPLERS, ETC.